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THE ESG PERFORMANCE ON STOCK LIQUIDITY WITH FAMILY OWNERSHIP AS A MODERATING VARIABLE

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Abstract

This study explores the extent to which family ownership moderates the linkage between ESG performance and stock liquidity. A purposive sampling strategy, categorized under non-probability sampling methods, was adopted in this study to ensure the selection of samples aligned with the research objective. The sample consists of 45 companies, yielding 225 firm-year observations over the 2019–2023 period. The data were obtained from Thomson Reuters and manually from each company's annual reports. The empirical results reveal that Environmental, Social, and Governance (ESG) performance does not have a statistically significant impact on stock liquidity within the Indonesian market. Additionally, family ownership, as a moderating variable, does not demonstrate a significant moderating effect neither attenuating nor amplifying the relationship between ESG performance and stock liquidity. This study contributes to addressing the gap in the literature regarding the interaction between ESG performance and family ownership in relation to stock liquidity in emerging markets. This study offers significant practical implications for various stakeholders, including regulators, listed firms, and investors in their decision-making processes. The number of companies meeting this criterion is limited, which restricts the generalizability of the findings to all firms in Indonesia.

Keywords: ESG Performance; Stock Liquidity; Family Ownership; Indonesia.

Abstrak

Penelitian ini mengkaji sejauh mana kepemilikan keluarga memoderasi hubungan antara kinerja ESG dan likuiditas saham. Strategi sampling purposif, yang dikategorikan sebagai metode sampling non-probabilitas, diterapkan dalam penelitian ini untuk memastikan pemilihan sampel sesuai dengan tujuan penelitian. Sampel terdiri dari 45 perusahaan, menghasilkan 225 observasi perusahaan-tahun selama periode 2019–2023. Data diperoleh dari Thomson Reuters dan secara manual dari laporan tahunan masing-masing perusahaan. Hasil empiris menunjukkan bahwa kinerja Lingkungan, Sosial, dan Tata Kelola (ESG) tidak memiliki dampak yang signifikan secara statistik terhadap likuiditas saham di pasar Indonesia. Selain itu, kepemilikan keluarga, sebagai variabel moderator, tidak menunjukkan efek moderasi yang signifikan baik meredam maupun memperkuat hubungan antara kinerja ESG dan likuiditas saham. Studi ini berkontribusi dalam mengisi celah dalam literatur mengenai interaksi antara kinerja ESG dan kepemilikan keluarga terkait likuiditas saham di pasar emerging. Studi ini memiliki implikasi praktis yang signifikan bagi berbagai pemangku kepentingan, termasuk regulator, perusahaan terdaftar, dan investor dalam proses pengambilan keputusan mereka. Jumlah perusahaan yang memenuhi kriteria ini terbatas, yang membatasi generalisasi temuan studi ini ke semua perusahaan di Indonesia.

Kata Kunci: *Kinerja ESG; Stock Liquidity; Kepemilikan Keluarga; Indonesia.*

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INTRODUCTION

Bloomberg Intelligence (2024) reports that global Environmental, Social, and Governance (ESG) assets surpassed $30 trillion in 2022 and are anticipated to exceed $40 trillion by 2030. This figure would constitute over 25% of the projected $140 trillion in total assets under management, underscoring a marked transition toward sustainable and ethically responsible investment practices. The growing prominence of ESG investing is not a temporary phenomenon but rather the result of fundamental drivers reshaping investment strategies. One primary factor is the evolving preference of investors, who increasingly favor sustainability-oriented investment options. According to the Global Sustainable Investment Alliance (2021) sustainable investment assets worldwide amounted to $35.3 trillion in 2020, accounting for 36% of all professionally managed assets.

Second, evolving regulatory frameworks have significantly contributed to the mainstreaming of ESG as governments and oversight institutions across the globe progressively enforce mandatory ESG-related disclosures and practices. Illustrative examples include the European Union's Sustainable Finance Disclosure Regulation (SFDR) and the Corporate Sustainability Reporting Directive (CSRD), both of which reflect policy initiatives designed to improve transparency and harmonize ESG reporting standards.

Third, corporate accountability has become increasingly significant, as firms are progressively acknowledging the strategic value of incorporating ESG dimensions into their operational frameworks. A Deloitte survey referenced by irisbusiness.com reveals that 83% of business leaders view ESG initiatives as critical to ensuring long-term organizational success, while 79% of companies have already embedded ESG principles into their overarching corporate strategies (IRIS, 2024).

Fourth, risk management has become a critical motivating factor given that both environmental threats such as climate change and social challenges such as labor unrest pose significant financial risks. Investors are progressively recognizing that robust management of these ESG related risks can enhance long-term financial outcomes.

In Indonesia, awareness of sustainable investing has begun to gain significant momentum. According to the Financial Services Authority (OJK, 2024), the value of ESG-based mutual fund assets under management reached IDR 4.2 trillion in 2023 and increased by 95.48% to IDR 8.21 trillion Nabhani (2024). This growth has been driven by various regulatory initiatives, such as the OJK's sustainable finance roadmap and the implementation of the Indonesian green taxonomy.

Spence's Signaling Theory (1973) posits that firms with strong ESG performance send positive signals to investors regarding sustainability and sound corporate governance, thereby reducing information asymmetry and enhancing stock liquidity. Several empirical studies on the relationship between ESG performance and disclosure and stock market liquidity, such as those by Chen et al. (2023), He et al. (2023),Meng-Tao et al. (2023), and Zhang et al. (2024) demonstrate that higher ESG ratings contribute to improved stock liquidity. This effect operates through mechanisms such as increased market attention and enhanced corporate transparency.

The role of family ownership as a moderating variable in the relationship

between ESG performance and stock liquidity among firms listed on the Indonesia Stock Exchange (IDX) holds substantial significance, both academically and practically. The dominance of family ownership in the ownership structures of Indonesian firms, as highlighted by Claessens et al. (2000), creates unique dynamics in corporate decision-making processes, including the implementation of ESG practices.

The role of family ownership is also associated with the entrenchment effect. According to Morck et al. (1988), family ownership may diminish the positive influence of ESG performance on stock liquidity due to several factors, including lower transparency, agency conflicts, and a focus on short-term objectives. Furthermore, La Porta et al. (1999) argue that family firms often face agency problems, in which dominant owners (i.e., families) tend to exploit their control at the expense of minority shareholders. Research by Anderson & Reeb (2003) also suggests that although family firms may exhibit strong financial performance, they are generally more opaque in disclosing information and less responsive to the demands of public investors. Such behavior may result in ESG initiatives undertaken by family-controlled firms not being fully recognized or valued by the market, thereby limiting their potential to enhance stock liquidity.

A study conducted by Ali et al. (2007) found that family firms tend to exhibit lower levels of information transparency and adopt more conservative reporting policies, which negatively affect investor trust in ESG disclosures and reduce market participation. In this context, ESG performance can only enhance stock liquidity if the disclosed information is perceived as open and reliable by market participants. However, in firms with family-based ownership structures often characterized by conservative and centralized control such conditions are frequently unmet. Similarly Dyer & Whetten (2006) observed that the conservative and protective values held by family owners may hinder the firm's responsiveness to external social pressures such as ESG expectations, thereby reducing the effectiveness of ESG in influencing investor perceptions and improving stock liquidity. Consequently, family ownership may serve as a negative moderating factor that weakens the relationship between ESG performance and stock liquidity.

This study carries significant urgency for several key reasons. First, it addresses a notable gap in the literature concerning the interaction between ESG performance and family ownership about stock liquidity in emerging markets. Second, it offers substantial practical implications for various stakeholders, including regulators, listed companies, and investors.

LITERATURE REVIEW

Influence of ESG Performance on Stock Liquidity

Signal theory provides an explanatory framework for the mechanism through which ESG performance affects stock liquidity. Originally introduced by Spence (1973), signaling theory explains how firms use signals to reduce the information asymmetry that exists between investors and management. First, the information mechanism, whereby strong ESG practices reduce information asymmetry between companies and investors by providing relevant non-financial information on environmental, social, and governance practices. Providing this information reduces

adverse selection costs and increases transaction frequency, thereby improving market depth and narrowing bid–ask spreads (Wang et al., 2023; Chen et al., 2023). Second, the reputation and investor base mechanism, whereby credible ESG commitments attract long-term institutional investors and investors with sustainability preferences. The entry of these investors broadens the demand base, increases the availability of counterparties, and creates more stable trading, thereby increasing liquidity Wang et al., (2023). Third, risk mitigation and governance mechanisms, whereby companies with good ESG governance and risk management exhibit lower fundamental volatility, smaller litigation risks, and more controlled agency conflicts. This reduction in risk lowers the risk premium demanded by investors, thereby encouraging higher trading activity and increasing stock market liquidity Chen et al., (2023). Thus, conceptually, good ESG performance can be viewed as a quality signal that reduces uncertainty and increases trading efficiency.

The impact of ESG on liquidity in Indonesia differs from other countries due to the unique structural characteristics of the market. First, the high concentration of ownership in family businesses, business groups, or state-owned enterprises reduces the role of market pressure on management, thereby limiting the incentive to conduct comprehensive ESG disclosure. When the quality of ESG information is low or not standardized, the information mechanism that should increase liquidity becomes less effective Tamala & Wibisono Lubis (2025). Second, the behavior of foreign and institutional investors in Indonesia does not always result in increased liquidity, as some foreign investors tend to be pro-cyclical and sensitive to external shocks; this condition causes the effect of ESG reputation on liquidity to be unstable, unlike in developed markets where ESG institutional investors tend to be long-term oriented (Yasmin, 2021; Rhee & Wang, 2009). Third, the quality and consistency of ESG disclosure, which remains heterogeneous in Indonesia, weakens the function of ESG as a credible signal; research comparing countries shows that the ESG liquidity relationship is stronger only when disclosure quality is high and standardized Cao et al., (2024). Fourth, relatively low market depth and the dominance of retail investors make liquidity more prone to fluctuations, so that improvements in ESG performance do not automatically translate into improved liquidity as they do in larger, more institutionalized markets. The combination of these factors explains why the relationship between ESG and stock liquidity in Indonesia may be weaker, more unstable, or different from the findings of cross-country studies.

As explained and supported by previous research, ESG performance can increase a company's stock liquidity. Therefore, the hypothesis proposed is:
H1: ESG performance has a positive and significant effect on stock liquidity.

The Moderating Effect of Family Ownership on the Relationship Between ESG Performance and Stock Liquidity

Family ownership can moderate the relationship between ESG performance and stock liquidity through two opposing theoretical mechanisms, namely the alignment effect and the entrenchment effect (La Porta et al., 1999; Anderson & Reeb, 2003). On the alignment side, agency theory argues that when families own a large share of stock and their wealth is concentrated in the company, the interests of the family and minority shareholders tend to align because family owners have a strong incentive to monitor management, prevent opportunistic behavior, and

maintain a long-term reputation that will be passed on to the next generation (Anderson & Reeb, 2003). This perspective is reinforced by socioemotional wealth (SEW) theory, which states that families value continuity, reputation, and social legitimacy, and therefore tend to support transparency, including high-quality ESG disclosure Gómez-Mejía et al., (2007). In the context of alignment, good ESG performance becomes a credible signal that reduces information asymmetry, improves investor risk perception, and encourages trading activity, thereby strengthening stock liquidity.

Conversely, the entrenchment effect arises when families have disproportionate control relative to their economic rights, for example through pyramidal structures, cross-ownership, or the use of double voting rights. Within the framework of type II agency theory, such structures increase the risk of expropriation of minority shareholders through tunneling, related-party transactions, or internal resource transfers Johnson et al., (2000). In conditions of entrenchment, ESG disclosure is no longer a credible signal of quality, but can serve as a tool of legitimacy to cover up opportunistic practices or maintain control. ESG becomes symbolic disclosure that does not fully reflect substantive sustainability practices, so that ESG signals fail to reduce information asymmetry and do not result in increased stock liquidity. Thus, family ownership can weaken the ESG-liquidity relationship when entrenchment mechanisms dominate.

This phenomenon is highly relevant in the Indonesian context, where the capital market is dominated by family businesses with concentrated ownership. OJK data (2023) shows that more than 65% of Indonesian public companies are controlled by family owners, and more than 50% of them use a pyramidal or layered ownership structure. Empirical research shows that family businesses in Indonesia are more likely to engage in tunneling and related-party transactions (Nugroho et al., 2021; Supatmi & Wukirasih, 2022), and face weaker institutional oversight due to low minority investor protection La Porta et al., (1999). Under these conditions, the risk of entrenchment is much stronger than the benefits of alignment. As a result, improved ESG performance does not always translate into increased information credibility or investor confidence. Consequently, the impact of ESG on stock liquidity tends to be weaker in family-controlled companies than in non-family companies.

Based on this theoretical mechanism, particularly the dominance of the entrenchment effect in family ownership structures in Indonesia, the moderation hypothesis can be formulated as follows:

H2: Family ownership weakens the influence of ESG performance on stock liquidity.

RESEARCH METHODOLOGY

Samples and Data

The researcher obtained data on share ownership and affiliation from the annual reports of each company. Additional control variables in this study include Leverage, Return on Assets (ROA), firm size, the COVID-19 pandemic, and ESG performance data, which were accessed through Refinitiv Eikon. The sampling method employed in this study combines a purposive sampling approach with a non-probability sampling technique.

The sample in this study consists of 45 companies, resulting in 225 firm-year

observations. The selected companies are firms listed on the Indonesia Stock Exchange (IDX) that consistently disclosed their ESG performance during the 2019–2023 period. Compared to developed countries such as those in Europe, the United States, and Japan, which have adopted more stringent and legally binding ESG reporting regulations, Indonesia remains relatively early. For example, the European Union has enforced the Corporate Sustainability Reporting Directive (CSRD), requiring large enterprises to report their ESG performance in alignment with the European Sustainability Reporting Standards (ESRS). Similarly, in the United States, the Securities and Exchange Commission (SEC) has introduced proposed regulations that would obligate publicly traded companies to disclose climate-related risks. Similarly, in Japan, ESG reporting is required as part of annual reports for listed companies through regulations issued by Japan's Financial Services Agency. In contrast, Indonesia's ESG regulatory framework, specifically Financial Services Authority Regulation (POJK) No. 51/2017, is only applicable to certain sectors and is not universally enforced across all listed firms Otoritas Jasa Keuangan (2017). As a result, the number of companies consistently compelled to comply with ESG disclosure standards remains limited.

Variable Measurement

Stock Liquidity

Informed by existing literature, this study applies two distinct approaches to evaluate stock liquidity: a direct proxy utilizing the bid-ask spread calculated as the time-weighted average of the effective spread (ESP) and an indirect proxy represented by the Amihud illiquidity ratio. The latter, developed by (Amihud, 2002), estimates an indirect measure of the bid–ask spread, commonly referred to as the ILLIQ indicator.

The use of ILLIQ and ESP as liquidity proxies is necessary because stock liquidity is a multidimensional concept that cannot be represented by a single measure. ILLIQ Amihud (2002) measures the price impact, that is, the extent of price changes resulting from transaction volume. This proxy is important because it reflects market depth and price sensitivity to orders, making it highly relevant for assessing the effect of ESG-related information on price reactions. Meanwhile, ESP captures transaction costs through the actual bid–ask spread realized in the market. This measure describes market tightness and investor accessibility.

These two proxies complement each other. ILLIQ measures the impact of transactions on prices, whereas ESP measures transaction costs and efficiency. Using both improves accuracy, strengthens the robustness of the results, and ensures that liquidity is comprehensively measured in accordance with international literature standards.

The corresponding computational formula is outlined as follows:

$$\text{ILLIQ} = \frac{1}{Di,t} \sum_{Y=1}^{Di,t} \frac{Ri,tD}{VOLi,tD}$$

In this context, Di,t represents the total number of effective trading days for stock i in year t. Ri,tD denotes the daily return of stock i, accounting for the reinvestment of cash dividends on day d of year t, while $VOLi,t$D reflects the daily trading volume of stock i on day D in the same year. A higher value of $ILLIQi,t$ typically signifies reduced market liquidity. However, in this study, the inverse of $ILLIQi,t$ is used, implying that a greater value corresponds to an increased level of stock liquidity.

Secondly, as outlined by McInish & Wood (1992) the standard benchmark for measuring liquidity is the relative effective spread, derived from the time-weighted average using high-frequency trading data. This metric, referred to as ESP, is computed using the following formula:

$$\text{ESP i,t} = 2 \text{ x } \frac{Price - (\frac{Aski,t + Bidi,t}{2})}{\frac{(Aski,t + Bidi,t)}{2}}$$

In this context, Pricei,t refers to the actual transaction price at the time the trade is executed, Ask$i$, represents the best available ask (purchase) price, and Bidi,t denotes the best available bid (sale) price at that same moment. The weighting factor corresponds to the time interval between two successive trades. A narrower bid-ask spread indicates lower execution costs for immediate transactions and reflects higher stock liquidity, whereas a wider spread suggests the opposite.

ESG Performance

Refinitiv provides an overall ESG score ranging from 0 to 100, where lower scores indicate weaker overall ESG performance for the observed firm, and higher scores reflect stronger performance. Refinitiv also offers ESG performance ratings on a scale from D− to A+, with each letter grade corresponding to a specific score interval Refenitiv (2022). In this study, the researcher opts to use numerical ESG scores rather than letter ratings as the numerical values offer greater precision in capturing the impact of ownership structure on ESG performance compared to cat egorical letter grades.

Tabel 1. Summary of Research Variables

Variable	Definition	Reference
Dependent Variable		
Stock Liquidity	The inverse of the Amihud liquidity indicator and the inverse of the time-weighted average relative effective spread.	Amihud, (2002) and McInish & Wood (1992)
Independent Variable		
ESG Performance	ESG Performance Score at Refinitiv eikon	Refinitiv Eikon
Moderating Variable		
Family Ownership	Using dummy variables, given 1 if family ownership and 0 if not.	La Porta et al. (1999), Anderson & Reeb, (2003) and Yolanda & Utama (2021)
Control Variable		
Leverage	Liability to asset ratio	Modigliani & Miller (1958)
ROA	Calculated from net income / total assets	Brigham & Houston (2019)
Size	Total asset	Rajan & Zingales 1995)
COVID-19	Using a dummy variable, given the number 1 if COVID-19 occurs and 0 if not.	Rahmawanti & (Suk, 2023)

Source: Processed by Researcher

Family Ownership

Family ownership refers to a situation in which a company is owned or controlled by an individual or family that holds a substantial portion of the company's shares. In this study, the researcher adopts the definition used in prior studies La Porta et al. (1999), Anderson & Reeb (2003) and Yolanda & Utama, (2021) whereby a firm is classified as family-owned if at least 20% of its shares are controlled by a family and/or if at least one family member serves as a director, CEO, or chairperson. To determine whether a family member is involved, the researcher manually identified such relationships for each company using information disclosed in the annual reports. A dummy variable was then constructed, taking the value of one (1) if the firm is classified as family-owned and zero (0) otherwise.

Control Variable

This study incorporates several control variables that influence stock liquidity and have also been widely employed in prior research. Based on commonly used variables in similar studies, the researcher decided to include Leverage, Return on Assets (ROA), Firm Size, Interest Coverage, and the COVID-19 Pandemic as control factors in this study.

Dynamic Panel Data Regression Model *(Generalized Method of Moments)*

Amihud (2002) and Chordia et al. (2001) demonstrated that stock liquidity is greatly influenced by its past value. Amihud (2002) emphasized that the expected illiquidity calculated from historical data has a significant impact on stock returns, indicating a long-term correlation. Chordia et al. (2001) found a negative autocorrelation in daily liquidity changes, reflecting a short-term dependence pattern. This finding confirms that liquidity is dynamic and not entirely random.

Greene (2005) demonstrated that conventional panel data regression methods such as OLS, Fixed Effects Model (FEM), and Random Effects Model (REM) exhibit asymptotic inefficiency and heterogeneity, which can lead to biased estimates. Therefore, to address issues of endogeneity and unobserved heterogeneity and to correct for bias and autocorrelation problems, this study employs the Generalized Method of Moments (GMM) estimation model. Moreover, GMM is particularly suitable for this study because the dependent variable, stock liquidity, is influenced by its past values.

This study can capture these historical dynamics by incorporating liquidity lags into the model, thereby making more accurate estimates of the impact of ESG and other variables. Additionally, lag variables help reduce potential bias due to the omission of relevant variables and ensure that liquidity variations originating from past factors are not mistakenly attributed to the main independent variables. Therefore, the inclusion of lag-ILLIQ and lag-ESP as control variables are an important methodological step in dynamic panel studies.

The first empirical model developed to test Hypothesis 1 (H_1) posits that ESG performance affects stock liquidity, which is measured using the bid-ask spread proxy, specifically the Amihud Illiquidity Index Amihud (2002).

$ILLIQ_{it} = \beta_0 + \beta_1 ILLIQ_{it-1} + \beta_2 ESG_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 SIZE_{it} + \beta_6 COV\text{-}19_{it} + \varepsilon_{it}$ (**Model 1**)

The second empirical model introduced in this study integrates family ownership as a moderating variable in the association between ESG performance

and stock liquidity, with the objective of evaluating Hypothesis 2 (H_2). This hypothesis asserts that the influence of ESG performance on stock liquidity is contingent upon the presence of family ownership. The corresponding model specification is presented as follows:

$ILLIQ_{it} = \beta_0 + \beta_1 ILLIQ_{it-1} + \beta_2 ESG_{it} + \beta_3 FAMOWN_{it} + \beta_4 ESG_{it} * FAMOWN_{it} + \beta_5 LEV_{it} + \beta_6 ROA_{it} + \beta_7 SIZE_{it} + \beta_8 COV\text{-}19_{it} + \varepsilon_{it}$ (**Model 2**)

RESULT AND DISCUSSIONS

Descriptive Statistical Analysis

The average score of the Environmental, Social, and Governance (ESG) variable was **54.82**, indicating relatively good performance of companies in terms of sustainability and social responsibility. During the observation period, the highest ESG score was **89.19**, recorded in 2022 by **PT Vale Indonesia Tbk**, while the lowest score was **13.06**, recorded in 2019 by **PT Gudang Garam Tbk**. These figures reflect corporate efforts to meet ESG standards although there remains significant room for improvement, particularly in ensuring consistent implementation across different sectors. A higher ESG score typically reflects stronger sustainability-oriented policies and can enhance both corporate reputation and financial performance, as evidenced by several studies Friede et al. (2015) and Kotsantonis et al. (2016) Therefore, while the current scores are relatively positive, there is still considerable potential for further optimization that can yield both social and financial benefits.

The average value of the Environmental, Social, and Governance (ESG) variable, which stands at 54.82, indicates relatively strong corporate performance in terms of sustainability and social responsibility. During the observation period, the highest ESG score was 89.19, recorded in 2022 by PT Vale Indonesia Tbk, while the lowest was 13.06, recorded in 2019 by PT Gudang Garam Tbk. These figures reflect the extent to which companies strive to meet ESG standards although there remains room for improvement, particularly in ensuring consistent implementation across different sectors. A higher ESG score suggests the adoption of sustainability-oriented policies, which can enhance both corporate reputation and financial performance, as evidenced by previous studies Friede et al. (2015) and Kotsantonis et al. (2016). Therefore, while the current ESG performance appears relatively positive, there is still potential for further optimization that can yield both social and financial benefits.

Tabel 2. Descriptive Statistics

Variabel	Mean	Maximum	Minimum	Std. Dev.	Observation
ESG	54.82747	89.19000	13.06000	18.85279	225
Illiq	-8.06e-08	4.54e-09	-2.12e-06	2.80e-07	225
ESP	10.26204	494.1364	-75.99001	72.5371	225
Famown	0.364444	1.000000	0.000000	0.482347	225
Lev	0.239603	0.743723	0.000000	0.192268	225
Roa	0.064984	0.454267	-0.185812	0.078754	225
Size	31.92536	35.31545	29.20647	1.27572 3	225
Covid-19	0.600000	1.000000	0.000000	0.490990	225

Researcher's Data Processing using StataNow 19.5

The ILLIQ variable Amihud (2002) exhibits an average value of 8.06e-08 with

a standard deviation of 2.80e-07, indicating a relatively high level of fluctuation across observations. The minimum ILLIQ value reached -2.12e-06 in 2019, recorded by PT Summarecon Agung Tbk, while the maximum value was 4.54e-09 in 2020, recorded by PT Pabrik Kertas Tjiwi Kimia Tbk. Meanwhile, the ESP variable (a potential alternative liquidity metric) recorded a mean of 10.26204 and standard deviation of 72.5371, suggesting a very wide dispersion of the data. The minimum ESP value was -75.99001 in 2022 at PT Jasa Marga Tbk, while the maximum was 494.1364 in 2021 at PT Charoen Pokphand Indonesia Tbk, indicating significant differences in liquidity levels across firms. The notably high standard deviation of ESP relative to its mean reflects inconsistency in liquidity patterns within the sample, which may be influenced by external factors such as the COVID-19 pandemic, during which approximately 60% of the observations were recorded.

Family firms are represented by the Family Ownership variable (FAMOWN), which ranges from a minimum value of 0 to a maximum of 1, where 0 denotes non-family businesses. The mean value of 0.3644 indicates that most firms in the sample are not entirely family owned. This implies that family-owned firms tend to pursue more conservative, long-term strategies, whereas non-family firms are generally more open to change and external investment.

Selection of the Dynamic Panel Data Estimation Model (GMM)

Drawing upon the outcomes of model specification diagnostics, such as the Arellano-Bond test and the Sargan-Hansen test, Model 1 which does not incorporate the moderating variable satisfies the specification criteria under both the FD-GMM and SYS-GMM approaches. In this study, the researcher selects SYS-GMM as the preferred estimation model, as the System GMM (Blundell-Bond) is more robust to bias than the Difference GMM Blundell & Bond (1998). Similarly, for Model 2, which includes the moderating variable, SYS-GMM is also adopted as the optimal model.

Table 3. Results of Dynamic Panel Test (GMM)

Variable	Model 1		Model 2	
Independent	**Coefficient**	**Prob.**	**Coefficient**	**Prob.**
C	7.38e-07	0.842	1.87e-06	0.623
L1.Illiq	0.399676***	0.000	0.4163151***	0.000
ESG	6.80e-12	0.999	7.81e-09	0.193
Famown	-	-	1.00e-06*	0.084
ESGxFamown	-	-	-1.59e-07*	0.060
Lev	4.90e-07	0.236	5.73e-07	0.184
ROA	8.92e-07**	0.047	1.04e-06**	0.025
Size	-3.01e-08	0.779	-8.18e-08	0.502
Covid-19	-1.28e-09	0.979	-3.64e-09	0.941
Wald Chi2	26.43		29.51	
Prob > Chi2	0.0002		0.0003	

Level of Signicance: ***) 1% **) 5% *)10%

Researcher's Data Processing using StataNow 19.5

The System Generalized Method of Moments (SYS-GMM) model is superior to the First-Difference GMM (FD-GMM) model as it addresses the common weakness of instruments that often arises when the dependent variable is highly persistent or

when the panel dataset has a short time dimension. FD-GMM relies solely on lagged variables as instruments in their difference form, which can be weak and lead to biased estimations. In contrast, SYS-GMM augments the model with equations in levels and uses instruments from the differenced equations, thereby producing more efficient and unbiased estimates.

According to Blundell & Bond (1998) and Roodman (2009) the System-GMM (SYS-GMM) estimator is highly appropriate for dynamic models, such as stock liquidity or ESG performance, which are influenced by their past values. Moreover, Bun & Windmeijer, (2010) demonstrated that SYS-GMM is more robust to weak instrument problems in small samples. Therefore, SYS-GMM is a more suitable choice for dynamic panel studies involving variables with high autocorrelation and potential endogeneity risks.

The results of the dynamic panel estimation (GMM) in Model 1 and Model 2 reveal various effects of the explanatory variables on the tested models. In both models, variable L1.ILLIQ exhibits a positive and statistically significant coefficient, with a p-value < 0.05 (0.000), indicating that past liquidity has a positive and significant impact on the dependent variable. This implies that the level of stock liquidity in the previous period plays an important role in influencing current-period liquidity. In other words, there is evidence of liquidity persistence in the stock market, where liquidity conditions are not random or entirely new in each period, but instead tend to follow a historical pattern.

The ROA (Return on Assets) variable is also statistically significant at the 0.05 level, with p-values of 0.047 (Model 1) and 0.025 (Model 2), indicating that corporate profitability has a positive effect on the dependent variable. In contrast, the ESG performance variable does not exhibit a significant effect in either model, as reflected by its high p-values (0.999 in Model 1 and 0.193 in Model 2. These results suggest that, under the GMM specification for Hypothesis 1, the null hypothesis (H_0) cannot be rejected, and thus the alternative hypothesis (H_1) is rejected.

The Famown variable (Family Ownership) is significant only in Model 2, with a p-value of 0.084, indicating a marginal effect at the 0.10 significance level. Meanwhile, the interaction term ESG × Famown (ESG performance interacted with Family Ownership) is nearly significant in Model 2, with a p-value of 0.060, suggesting a potential but weak moderating effect. However, neither variable meets the conventional 0.05 significance threshold. This implies that the null hypothesis (H_0) cannot be rejected, and thus, Hypothesis 2 (H_2) is rejected. In other words, family ownership does not significantly strengthen or weaken the effect of ESG performance on stock liquidity.

Other variables, such as LEV, SIZE, and COVID-19, do not exhibit statistically significant effects in either model, as indicated by p-values greater than 0.05. Overall, the Wald Chi-squared test confirms that both models are statistically significant, with very small p-values (0.0002 for Model 1 and 0.0003 for Model 2), suggesting that the models explain a substantial portion of the variability in the data. Therefore, despite the insignificance of some individual variables, the overall models are considered valid in capturing the relationships among the tested variables.

Robustness check

To further validate the reliability of these findings, a robustness check was carried out using a direct liquidity measure, following the methodology introduced by McInish & Wood (1992). This measure employs the Effective Spread Percentage (ESP), defined as the time-weighted average of relative effective spreads obtained from high-frequency trading data. The corresponding regression outcomes are presented as follows:

Table 4 Results of Static Panel and GMM Estimation
(ESP as the independent variable)

Variable Independent	Model 1		Model 2	
	Coefficient	Prob.	Coefficient	Prob.
C	-843.5874	0.000	-814.5805	0.000
ESP L1.	0.881842***	0.000	0.8486516***	0.000
ESG	-0.048430	0.779	-0.406170*	0.091
Famown	-	-	-49.90015**	0.019
ESGxFamown	-	-	0.564826*	0.087
Lev	21.36817**	0.045	-1.07263	0.936
Roa	-12.30463	0.544	-22.83217	0.272
Size	26.33461***	0.000	26.49564***	0.000
Covid-19	1.464062	0.458	1.045947	0.598
Wald Chi2	338.50		347.23	
Prob > Chi2	0.0000		0.0000	

Level of Signicance: ***) 1% **) 5% *)10%
Researcher's Data Processing using StataNow 19.5

Based on Table 4, the regression results of ESG performance on ESP, as well as the interaction between family ownership and ESG in both Model 1 and Model 2, do not show statistically significant effects. This is evident from the p-values of all variables, which exceed the 0.05 threshold.

The Effect of ESG Performance on Stock Liquidity

The study results indicate that ESG performance does not have a positive and significant effect on stock liquidity. This finding differs from studies in developed countries, such as Chen et al. (2023), He et al. (2023), and Zhang et al. (2024), which found a significant and positive relationship between sustainability practices and increased liquidity. The insignificance in the context of Indonesia as an emerging market can be explained by a combination of characteristics of empirical data, capital market structure, and investor dynamics that are fundamentally different from markets in developed countries. Statistically, the ESG scores in the research sample had an average of 54.83 with a wide range from 13.06 to 89.19, indicating strong heterogeneity and inconsistency in the quality of sustainability implementation between companies. This variation indicates that investors' ESG signals are neither homogeneous nor uniformly credible. Consistent with Deng (2025), the phenomenon of ESG rating divergence can cause sustainability signals to become blurred and reduce market efficiency because investors receive non-standardized information, thereby reducing the ability of ESG to influence trading decisions and ultimately stock liquidity.

This heavy-tailed distribution indicates that the Indonesian market

experiences extremely high liquidity fluctuations, especially during the COVID-19 pandemic, which accounts for 60% of the observations. This condition makes liquidity more influenced by sentiment and macro-conditions than ESG. In the inverse form, ILLIQ has a very small and stable value, indicating that liquidity variations are too small to respond to long-term signals, such as ESG. Thus, in terms of data characteristics, ESG signals are prone to being "lost" or overshadowed by the market's much more dominant microstructural volatility.

The Indonesian capital market structure further reinforces this explanation. The IDX 2023 data shows that approximately 60% of market capitalization comes from commodity sectors such as mining and plantations, which generally have low ESG scores but high liquidity due to being tied to global price fluctuations and international market demand. This creates the phenomenon of ESG–Liquidity Decoupling, a condition in which companies with low ESG scores remain actively traded and enjoy high liquidity, whereas companies with high ESG scores are not always followed by significant trading activity. Unlike developed markets, where institutional investors play a major role in driving ESG integration into trading strategies, the Indonesian market is still dominated by short-term retail investors. The Financial Services Authority OJK (2023) notes that only 0.43% of total managed funds in Indonesia adopt sustainable investment principles, indicating that ESG is not yet a primary consideration in institutional investment decisions. Without the presence of institutional investors who consider ESG a key risk factor, ESG performance is unlikely to influence bid-ask spreads, trading volume, and market depth.

Several studies indicate that ESG performance has yet to emerge as a primary determinant in the dynamics of stock market liquidity in developing countries, particularly in Indonesia. Research by Rifli et al. (2024) states that ESG practices among energy companies in Indonesia do not have a direct and significant effect on financial performance, such as Return on Assets (ROA), unless moderated by green innovation. This supports the argument that ESG has not yet been fully integrated into investors' risk–return perceptions, thereby making it less likely to influence market liquidity directly.

In addition, the dynamics of the COVID-19 pandemic put additional pressure on the market, widening spreads and increasing trading volatility. The 2020–2021 period, which covers most of the observations, was a period when investor decisions were more influenced by external uncertainty and global macroeconomic changes. In such turbulent conditions, strategic and long-term ESG signals do not have much opportunity to influence daily trading activity. Therefore, the insignificant relationship between ESG and liquidity is not just a statistical phenomenon but a true reflection that the Indonesian capital market has not yet reached a stage of maturity where ESG is a fundamental factor in the formation of liquidity.

Meylani & Sari (2025) found that ESG practices do not have a significant impact on ROA financial performance unless green innovation moderates it, indicating that ESG in Indonesia functions more as a long-term signal that the market has not fully internalized. Similarly, Pramadhia & Nainggolan (2025) found that ESG has no effect on the cost of debt, and only certain aspects, such as emissions or environmental innovation, have a limited impact on capital structure. These findings reinforce the argument that Indonesian investors do not yet view ESG as relevant information for

short- or medium-term risk assessment. Thus, ESG has not yet been able to influence market indicators such as stock liquidity.

Overall, this discussion shows that the absence of a significant impact of ESG on stock liquidity is the result of high ESG score heterogeneity, a market structure dominated by the commodity sector, low adoption of sustainable investment, the dominance of retail investors, and extreme shocks caused by the COVID-19 pandemic. All these factors interact and shape the context in which ESG signals are not yet strong enough to influence the Indonesian market's microstructure.

The Moderating Effect of Family Ownership on ESG Performance on Stock Liquidity.

The findings show that family ownership does not weaken the relationship between ESG performance and stock liquidity, thus rejecting the moderation hypothesis. These results indicate that family ownership does not significantly influence how the market responds to sustainability signals. In the Indonesian context, this condition can be understood through several structural and institutional factors, as well as the characteristics of FB. First, regulatory policies exert external pressure on ESG practices, such as POJK No. 51/2017, which only applies to the financial services sector and several strategic sectors. Because ESG regulations are not uniformly applied to all issuers, family and nonfamily companies face the same expectations and obligations. Thus, general and non-selective regulations mean that family ownership is not strong enough to create differences in market reactions to ESG, as reflected in insignificant results. This is consistent with the view of Claessens et al. (2000) that market pressures are often weaker than institutional pressures in developing countries, so ownership structure is not always a key differentiating factor in market dynamics.

Second, family businesses do not always have consistent governance patterns. Some studies, such as Liang & Renneboog (2020), have shown that family businesses can have more stable governance structures and stronger long-term orientation, which in theory can improve ESG quality. Therefore, family businesses do not have a clear unidirectional tendency in responding to ESG: some adopt ESG as a reputation investment, while others view it as a cost burden. This inconsistency in motivation weakens the moderating role of family ownership and makes it statistically undetectable.

Third, the Indonesian capital market is still in the early stages of ESG integration as a microstructural factor. Investors, especially retail investors who dominate transactions, do not consider ESG as a key determinant of trading decisions. Instead, they focus on short-term volatility, price momentum, and sectoral trends. Even if family-owned companies have higher ESG scores, this signal does not translate into increased liquidity because the market still views ESG as a long-term factor rather than a determinant of daily liquidity. These findings are in line with those of Meylani & Sari (2025), who state that ESG has no direct impact on profitability without mediating variables such as green innovation, and Pramadhia & Nainggolan (2025), who show that Indonesian investors have not internalized ESG in their risk assessments, so it does not affect debt costs or capital structure.

Fourth, the characteristics of the sectors in the sample also weakened the moderating effect. As explained earlier, approximately 60% of the IDX market capitalization comes from commodity sectors with low ESG intensity but high

trading activity, especially during the global commodity price surge in 2020–2023. Under these conditions, family-owned companies in the commodity sector continued to enjoy high liquidity due to global market cyclicality rather than sustainability practices. When strong sectoral factors determine liquidity, the moderating effect of ownership structure becomes smaller, so that the ESG–liquidity relationship remains unchanged regardless of whether the company is family-owned or not.

Market dynamics during the COVID-19 pandemic were an important factor. The research period covered 60% of the pandemic year (2020–2021), during which spreads and price volatility were very high, as reflected in the extreme distribution of effective spreads (min, 75.99; max, 494.14; sd, 72.54). In such volatile market conditions, investors did not assess corporate governance characteristics in depth, including whether the company was family-owned. In other words, the intensity of market shocks was more dominant than internal company factors, making the moderating effect of family ownership difficult to detect.

In countries with low ESG penetration, such as Indonesia (which only reached 0.43% of ESG-based managed funds according to OJK 2023), family ownership does not have sufficient influence to change the ESG–liquidity relationship. Wang et al. (2023) also showed that when institutional investors become the main actors in stock trading, a condition that is not yet dominant in Indonesia, a new moderating effect emerges.

CONCLUSION

The results of this study conclude that Environmental, Social, and Governance (ESG) performance does not exhibit a statistically significant influence on stock liquidity within the Indonesian capital market. Despite ESG being widely recognized as a key driver for enhancing corporate transparency and investment attractiveness, empirical evidence indicates that such attributes alone may not be sufficient to affect liquidity in this context. Additionally, the hypothesized moderating effect of family ownership is not empirically supported, as it neither amplifies nor diminishes the relationship between ESG performance and stock liquidity. These findings suggest that, in Indonesian market settings, neither ESG initiatives nor family ownership constitute significant determinants of liquidity. This outcome may be attributed to the distinct structural characteristics of Indonesia's capital market or the presence of other prevailing factors that more strongly shape liquidity behavior.

This study has several important limitations. First, the sample size only includes 45 companies that consistently reported ESG scores for the 2019–2023 period. This condition has the potential to cause selection bias and make the study findings not fully generalizable to all companies on the IDX. Second, ESG measurement relies on only one source, Refinitiv, which is prone to rating divergence between institutions, thereby compromising measurement accuracy.

Additionally, liquidity proxies, such as ILLIQ and especially ESP, show very high variation, limiting the model's sensitivity in detecting the influence of ESG. From a methodological perspective, the use of System-GMM still faces the risk of weak instruments and potential overfitting, mainly due to the relatively small number of observations. The short research period and the impact of the COVID-19

pandemic may also affect market behavior and mask the influence of ESG on liquidity.

The moderating variable of family ownership was measured using a simple dummy variable, which did not capture the actual variation in the level of family control that could affect the ESG–liquidity relationship. Overall, limitations in the sample, measurement, and estimation methods likely contributed to the insignificance of the ESG relationship and the moderating effect of family ownership in this study.

Based on the conclusions outlined above, this study offers several implications. Firms in Indonesia should improve the transparency and standardization of ESG reporting to enable investors to utilize such information for more informed decision-making, further research is needed to explore how family ownership may influence other aspects, such as ESG policy, which could affect corporate performance and stock liquidity, future studies may also consider incorporating additional variables that could influence stock liquidity, including external factors affecting the Indonesian capital market.

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