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LONG-TERM EFFECTS OF SHARIA STOCK STATUS CHANGES ON RETURNS AND LIQUIDITY

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Abstract
This study examines the long-term impact of changes in Sharia stock status (CSS) on abnormal returns (AR) and liquidity (LIQ) in the Indonesian Sharia Stock Index (ISSI). The analysis explores liquidity's mediating and moderating roles to clarify how Sharia screening outcomes shape market behavior beyond short-term announcement effects. Monthly data from 2018–2024 are analyzed using an event-study framework and Partial Least Squares Structural Equation Modelling (PLS-SEM) to test direct, indirect, and interaction effects grounded in signaling, asymmetric information, and liquidity theories. The findings show that CSS strongly affects liquidity for excluded stocks but only marginally influences liquidity for included stocks. CSS does not directly generate abnormal returns for excluded firms, while inclusion triggers short-term return pressure. Liquidity acts as a significant mediating channel, particularly following exclusion, translating compliance-related signals into price adjustments. No moderating effect is identified, indicating that liquidity operates sequentially rather than conditionally. Model diagnostics confirm strong predictive performance for liquidity and relatively weaker explanatory power for returns, highlighting other contributing market forces. This study provides novel long-horizon evidence on Sharia index dynamics and underscores liquidity's strategic relevance for investors and regulators in strengthening Islamic capital market efficiency and compliance mechanisms.
Keywords: Sharia Stock Status, Abnormal Returns, Liquidity, Indonesian Sharia Stock Index, PLS-SEM

INTRODUCTION

The Islamic capital market has grown significantly as investors increasingly seek ethical and faith-aligned investment opportunities that comply with Sharia principles (Braiek et al., 2022; Faturohman & Nugraha, 2022; Mehmood et al., 2024; Tariq Alrifai, 2015). This development strengthens the role of Islamic finance in supporting economic resilience, ethical investing, and sustainable development (Ameziane, 2024; Ashraf et al., 2022). Indonesia represents one of the most vibrant Islamic market environments, supported by a large Muslim population, proactive regulation, and rising investor awareness. A key feature of this market is the periodic revision of the Indonesian Sharia Stock Index (ISSI), resulting in Changes in Sharia Stock Status (CSS), which may influence abnormal returns (AR) and liquidity (LIQ) for affected firms (Labidi et al., 2022; Sethy & Tripathy, 2024).

Sharia-compliant securities increasingly attract investors who prioritize faith-driven, ethical, and socially responsible objectives, resulting in investment behavior that differs systematically from conventional markets (Alshubiri, 2021; Bauer et al., 2005; Brodmann et al., 2023; Ho et al., 2014). Empirical evidence further shows that ethical and Sharia-oriented investors exhibit distinct sentiment-driven and liquidity-related responses under asymmetric information

environments, reinforcing the behavioral and informational uniqueness of Islamic equity markets (Benita et al., 2021; Mili et al., 2024). Within this setting, changes in Sharia stock status (CSS) operate as salient market signals: inclusion is commonly interpreted as certification of firm legitimacy, ethical standing, and compliance quality, thereby strengthening investor confidence and reputational capital, while exclusion may trigger concerns regarding governance quality and compliance sustainability (Al-Khazali, 2014; Hati et al., 2023; Kabir Hassan et al., 2010; Mehmood et al., 2024). These compliance-driven signals have tangible market implications, as prior studies document that index revisions and Sharia screening outcomes affect stock valuation through abnormal returns (AR) and influence trading behavior by altering market depth and liquidity conditions (Amihud & Mendelson, 1986; Brodmann et al., 2023; Hegde & McDermott, 2003).

Despite this established evidence, important gaps persist in the literature. First, most studies examining Sharia index revisions and compliance-related events focus predominantly on short-term price and volume reactions, providing limited insight into the persistence of CSS effects over longer horizons (Labidi et al., 2022). Second, existing empirical evidence is concentrated mainly in developed or GCC markets, leaving emerging Islamic capital markets—such as Indonesia—largely underexplored despite their distinct regulatory frameworks and investor composition (Labidi et al., 2022; Tawfik et al., 2025). Third, while Sharia status is widely recognized as a reputational and informational signal, liquidity is typically treated as an outcome variable or a control factor rather than as a core transmission mechanism through which compliance signals translate into abnormal returns, leaving its mediating or conditioning role insufficiently examined (Masrizal et al., 2021; Sethy & Tripathy, 2024). Finally, many prior studies rely on aggregate index-level or static analyses that obscure asymmetric market responses between inclusion and exclusion events and limit understanding of how Sharia screening operates as a dynamic signaling process under information asymmetry (Alshubiri, 2021; Benita et al., 2021).

This study is grounded in Signaling Theory, Asymmetric Information Theory, and Liquidity Theory. Signaling Theory conceptualizes changes in Sharia stock status (CSS) as a credible indicator of firm quality and Sharia compliance (Ross, 1977; Spence, 1973). Recent empirical evidence extends this perspective by demonstrating that certification-based and non-financial disclosures function as credible market signals that reduce information asymmetry and shape investor perceptions of firm quality and risk (da Silva, 2025; Huang et al., 2025; Ullah, 2020). In faith-based and ethical investment settings, such signals are particularly salient, as compliance outcomes convey both financial and normative information to heterogeneous investors, thereby influencing trading behavior and valuation dynamics under asymmetric information conditions (Fathi et al., 2025). Asymmetric Information Theory asserts that Sharia certification reduces investor uncertainty by enhancing transparency and credibility (Akerlof, 1970; Iqbal & Mirakhor, 2011). Recent empirical studies reinforce this view by demonstrating that Shariah-related and non-financial disclosures improve information transparency, lower information asymmetry, and reduce perceived risk and cost of capital, particularly in Islamic and ethical investment settings (Abdulrahman et al., 2024). In markets characterized by heterogeneous investors and compliance constraints, such transparency-enhancing mechanisms are especially effective in shaping investor confidence and trading behavior (Al-Awadhi et al., 2025). Liquidity Theory highlights the role of LIQ in shaping investor required returns, market efficiency, and

price adjustment speed (Amihud, 2002; Amihud & Mendelson, 1986). Recent empirical evidence confirms that liquidity and liquidity risk remain systematically priced and continue to explain cross-sectional return variation across both developed and emerging markets (Dong et al., 2024; Khadeeja Farhana & Abdul Azees, 2024; Sethy & Tripathy, 2024). Within this framework, changes in Sharia stock status (CSS) function as informational and behavioral market events that alter the liquidity environment, thereby influencing trading activity, price discovery, and return formation. These frameworks collectively position CSS as an informational and behavioral market event.

Prior research indicates that index inclusion events generally improve trading activity and valuations, while exclusions trigger liquidity contraction and negative price reactions (Beneish & Whaley, 1996; F.-H. Chen, 2024). Evidence from Islamic markets shows similar patterns, where compliance-driven inclusion strengthens returns and market participation (Hoepner et al., 2011; Sherif & Lusyana, 2017). Studies in Indonesia reveal positive AR and LIQ effects after inclusion, with negative reactions to exclusion (N. S. Kassim et al., 2017). Behavioral factors also influence market responses, reflecting investor sentiment and ethical preferences (Hati et al., 2023; Yumna, 2019), consistent with behavioral finance principles (Kahneman & Tversky, 1979).

Despite growing evidence on the market implications of Sharia stock classification, two critical gaps remain unresolved in the literature. First, most existing studies concentrate on short-term event windows surrounding Sharia index revisions, leaving limited understanding of whether the effects of changes in Sharia stock status (CSS) on abnormal returns (AR) and liquidity (LIQ) persist, dissipate, or evolve over longer investment horizons (Alaoui Mdaghri et al., 2020; Dunham & Obonyo, 2025; Haron & Ayojimi, 2019). This short-horizon emphasis restricts insights into the durability of Sharia compliance signals and their relevance for long-term investors and market stability. Second, although liquidity is widely acknowledged as a key determinant of price formation, prior research has largely treated it either as an outcome or a control variable, with limited empirical investigation into its simultaneous roles as both a transmission mechanism (mediator) and a conditioning factor (moderator) in the CSS–return relationship (Benita et al., 2021; Masrizal et al., 2021). As a result, the mechanisms through which Sharia compliance signals are incorporated into prices, and the conditions under which their market impact is amplified or attenuated, remain insufficiently understood. Addressing these limitations calls for a comprehensive long-horizon analysis within emerging Islamic capital markets, where investor heterogeneity and Sharia screening constraints are likely to intensify the role of liquidity in shaping market responses (Mili et al., 2024; Tawfik et al., 2025).

This study investigates the long-term relationship between CSS, AR, and LIQ in Indonesia from 2018 to 2024. Liquidity is modeled as both a mediating and moderating variable, following an advanced moderated-mediation framework (Preacher et al., 2007), to capture its dual role in transmitting and conditioning the impact of changes in Sharia stock status (CSS) on abnormal returns. As a mediator, liquidity represents the primary channel through which Sharia compliance signals—interpreted as indicators of firm quality and reduced information asymmetry—affect trading activity and are subsequently incorporated into prices (Akerlof, 1970; Amihud & Mendelson, 1986; Ross, 1977; Spence, 1973). Empirical evidence shows that index revisions and ethical screening events influence liquidity prior to price adjustment, supporting its role as a

transmission mechanism (Beneish & Whaley, 1996; Benita et al., 2021; Hegde & McDermott, 2003). As a moderator, liquidity conditions the magnitude and speed of price responses, as market microstructure theory suggests that information is absorbed more rapidly in liquid stocks and more slowly—often with amplified effects—in illiquid ones (Amihud, 2002; O'Hara, 2015). Modeling liquidity in both roles therefore provides a more realistic representation of how Sharia compliance signals are processed in segmented Islamic equity markets, where investor heterogeneity and compliance constraints intensify liquidity's influence on return dynamics (Derigs & Marzban, 2009; Masrizal et al., 2021).

Event-study methodology is combined with Partial Least Squares Structural Equation Modeling (PLS-SEM), suitable for non-normal data and formative constructs (Diamantopoulos & Winklhofer, 2001; Hair et al., 2019; Sarstedt et al., 2021). To ensure robust and reliable inference, the analysis adheres to best practices in addressing multicollinearity, common method bias, and nonlinear relationships (Kock, 2015a, 2015b; Kock & Lynn, 2012). Grounded in signaling theory, asymmetric information theory, and liquidity theory, this integrated framework provides a comprehensive behavioral and informational interpretation of Sharia screening outcomes.

The originality of this study is articulated along three complementary dimensions. First, it extends the predominantly short-term literature on Sharia index revisions by providing long-horizon evidence on how Sharia stock reclassifications influence market behavior beyond temporary announcement effects, directly responding to calls for persistence-oriented analysis in Islamic capital markets. Second, it introduces a hybrid event-driven PLS-SEM framework that remains rarely applied in Islamic finance research, enabling the simultaneous estimation of direct, indirect, and interaction effects and offering a structurally coherent test of liquidity's dual role as both a transmission mechanism (mediator) and a conditioning factor (moderator). Third, by embedding signaling theory, asymmetric information theory, and liquidity theory within a unified empirical design, the study contributes to Islamic asset pricing and market efficiency literature by demonstrating how liquidity functions as a strategic channel through which ethical compliance signals are translated into longer-term price adjustments. Collectively, these contributions enhance the understanding of how Sharia-compliant mechanisms shape asset pricing, investor behavior, and market resilience in emerging Islamic markets, with implications that extend to broader comparative studies of ethical and faith-based finance.

The remainder of this article proceeds as follows. The methodology explains sample selection, event-study procedures, variable construction, and PLS-SEM implementation. The empirical results evaluate direct, mediated, and moderated effects. Discussion situates findings within theoretical and policy context. The conclusion outlines key contributions, implications for investors and regulators, study limitations, and directions for future research including multi-country comparisons and behavioral market microstructure analysis.

RESEARCH METHOD

This section outlines the methodological framework for examining the impact of Sharia status changes on liquidity and abnormal returns for exclusion and inclusion stocks of the Indonesian Sharia Stock Index (ISSI). The study employs a quantitative approach using Partial Least Squares Structural Equation Modelling (PLS-SEM) to test five hypotheses: H1 (CSS → AR), H2 (CSS → LIQ), H3 (LIQ → AR), H4 (CSS → LIQ → AR, mediation), and H5 (CSS*LIQ → AR, moderation). The subsections cover research design, data collection, variable measurement, model specification, data analysis, and ethical considerations.

2.1. Research Design

The study examines how changes in Sharia status impact liquidity and abnormal returns by comparing exclusion and inclusion stocks of the Indonesia Sharia Stock Index (ISSI). A causal-predictive design using PLS-SEM is adopted, leveraging its suitability for formative constructs, non-normal financial data, and smaller sample sizes common in Sharia stock studies (Hair et al., 2019). The analysis spans 30 November 2018 to 30 November 2024, covering 11 biannual ISSI revision periods announced by the Indonesia Stock Exchange (IDX) and Otoritas Jasa Keuangan (OJK). Each stock is evaluated across two periods: the pre-change period (t-1), from 10 days after the previous revision announcement to 10 days before the current announcement, and the post-change period (t0), from 10 days after the current announcement to 10 days before the subsequent announcement. These 10-day buffers align with OJK's regulatory adjustment period as stipulated in POJK Number 19/POJK.04/2015 concerning the Issuance and Requirements of Sharia Mutual Funds, which mandates a transition window for Sharia-compliant investment adjustments, minimizing immediate post-announcement volatility from speculative trading or portfolio rebalancing (OJK, 2015). Empirical evidence from Hoepner et al. (2011) further supports this design, demonstrating that a 10-day buffer stabilizes market responses in Sharia finance contexts by excluding short-term price fluctuations driven by announcement effects. The buffers also accommodate stocks with brief ISSI tenures due to frequent compliance reassessments (Jawadi et al., 2015). The design integrates event-based analysis with structural modeling to test H1–H5, capturing stable market responses within the OJK framework (Hoepner et al., 2011).

2.2. Data Collection

Data were sourced from the Bursa Efek Indonesia (BEI) via www.idx.co.id and cross-verified with OJK records (Saunders et al., 2019). The dataset includes biannual ISSI revision announcements, daily stock data (closing prices, trading volumes), and daily ISSI index values, covering 30 November 2018 to 30 November 2024 across 11 revision cycles. The sample comprises 574 stocks, with 287 entering and 287 exiting the ISSI, selected based on BEI listing, inclusion or exclusion during revision cycles, and complete daily price and volume data for t-1 and t0. Stocks with trading suspensions (>5 trading days) or significant data gaps (>10% missing daily data) were excluded. Data processing involved adjusting closing prices for corporate actions (e.g., stock splits, dividends), standardizing trading volumes by shares outstanding, and aligning data with OJK's 10-day adjustment windows.

2.3. Data Collection

Four latent constructs are measured and standardized as z-scores for PLS-SEM compatibility. Change in Sharia Status (CSS), a formative construct, uses Buy-and-Hold

Abnormal Return Before Status Change ($BHAR_{bef}$) and Liquidity Before Status Change (LIQ_{bef}), as these independently capture pre-change market effects (Diamantopoulos & Winklhofer, 2001). Liquidity (LIQ), a single-indicator construct, uses Post-Announcement Liquidity (LIQ_{aft}) (Barardehi et al., 2021). Abnormal Return (AR), a single-indicator construct, uses Buy-and-Hold Abnormal Return After Status Change ($BHAR_{aft}$) (Ho et al., 2014). CSS*LIQ, a reflective construct, measures moderation using the product of standardized LIQ_{aft} and CSS scores (Derigs & Marzban, 2009). Missing data (<5%) were interpolated linearly, significant gaps (>10%) led to listwise deletion, and outliers (z-scores >3 or <-3) were reviewed for exclusion.

For Buy-and-Hold Abnormal Return, the calculation begins with the daily return of a stock, denoted as $R_{i,s}$, which measures the percentage change in the stock's price from one day to the next.

$$R_{i,s} = \frac{P_{i,s}}{P_{i,s-1}} - 1, \qquad (1)$$

In this formula, $P_{i,s}$ represents the closing price of the stock i on the trading day s, and $P_{i,s-1}$ is the closing price on the previous day. Similarly, the daily return for the ISSI index, $R_{ISSI,s}$, is computed to benchmark market performance.

$$R_{ISSI,s} = \frac{I_s}{I_{s-1}} - 1, \qquad (2)$$

Here, I_s denotes the ISSI index value on day s, and I_{s-1} is the index value on the previous day. The buy-and-hold return for the stock over a period of T trading days, $BHR_{i,t}$, is then calculated by compounding the daily returns.

$$BHR_{i,t} = \prod_{s-1}^{T}(1 + R_{i,s}) - 1, \qquad (3)$$

In this expression, t indicates the period, either t-1 for $BHAR_{bef}$ or t0 for $BHAR_{aft}$. The same compounding approach is applied to the ISSI index to obtain its buy-and-hold return, $BHR_{ISSI,t}$

$$BHR_{ISSI,t} = \prod_{s-1}^{T}(1 + R_{ISSI,s}) - 1, \qquad (4)$$

Finally, the abnormal return, $BHAR_{i,t}$, is derived by subtracting the ISSI's buy-and-hold return from the stock's buy-and-hold return.

$$BHAR_{i,t} = BHR_{i,t} - BHR_{ISSI,t} \qquad (5)$$

This metric, used for $BHAR_{bef}$, in t-1 to capture pre-change abnormal return, and for $BHAR_{aft}$ in t0 to isolate post-change effects, it quantifies the stock's performance relative to the market. It reflects market expectations before and event-driven returns after Sharia status changes, consistent with methodologies in Sharia finance (Hoepner et al., 2011).

Liquidity measurement, used for LIQ_{bef} in t-1 and LIQ_{aft} in t0, assesses the ease of trading a stock by calculating its illiquidity. Daily illiquidity, $ILLIQ_{i,s}$, is determined as the absolute value of the stock's daily return divided by the product of its trading volume and closing price.

$$ILLIQ_{i,s} = \frac{|R_{i,s}|}{VOL_{i,s}.P_{i,s}} \qquad (6)$$

In this formula, $R_{i,s}$ is the absolute daily return of stock i on day s, $VOL_{i,s}$ represents the trading volume in shares, and $P_{i,s}$ is the closing price. The average illiquidity over T trading days, $ILLIQ_{i,t}$ is computed as the mean of daily illiquidity values.

$$ILLIQ_{i,t} = \frac{1}{T}\sum_{s=1}^{T} ILLIQ_{i,s} \qquad (7)$$

Here, t denotes the period, either t-1 for LIQ_{bef} or t0 for LIQ_{aft}. Liquidity, $LIQ_{i,t}$, is then obtained as the inverse of average illiquidity.

$$LIQ_{i,t} = \frac{1}{ILLIQ_{i,t}} \qquad (8)$$

This metric quantifies pre-change trading activity for LIQ_{bef} and post-change trading efficiency for LIQ_{aft}, providing insights into how Sharia status changes influence market liquidity (Barardehi et al., 2021). All calculations adhere to OJK's 10-day adjustment windows, ensuring alignment with Indonesia's regulatory framework for Sharia-compliant stocks.

2.4. Model Specification

The PLS-SEM model tests H1–H5, hypothesizing that CSS directly affects LIQ and AR, LIQ influences AR, and LIQ mediates and moderates the CSS-AR relationship. CSS is a formative construct ($BHAR_{bef}$, LIQ_{bef}), LIQ and AR are single-indicator constructs (LIQ_{aft}, $BHAR_{aft}$), and CSS*LIQ is reflective (Hair et al., 2019). The choice of Partial Least Squares Structural Equation Modeling (PLS-SEM) over covariance-based SEM (CB-SEM) is methodologically justified by several factors. First, the study's dataset exhibits non-normal distributional properties, as confirmed by skewness–kurtosis and Jarque–Bera diagnostics, making PLS-SEM more appropriate for variance-based estimation. Second, the moderate sample size (n = 574) and the inclusion of formative constructs (CSS) limit the suitability of CB-SEM, which requires large samples and reflective measurement models to achieve robust parameter estimation (Hair et al., 2019; Sarstedt et al., 2021). Third, the event-based structure and non-linear interactions of financial data necessitate an algorithm capable of capturing asymmetric effects, which WarpPLS addresses through its Warp3 estimation. Therefore, PLS-SEM provides a more flexible, prediction-oriented framework consistent with the research objective to examine directional and mediating-moderating effects in Sharia stock behavior.

2.5. Data Analysis

Preliminary analysis includes descriptive statistics, correlation analysis, and normality testing (Kolmogorov-Smirnov). Outliers are detected via Mahalanobis distance (p < 0.001). The measurement model assesses CSS indicator weights and VIFs ($\leq$ 3.3), and reliability (Cronbach's

Alpha ≥ 0.7) and convergent validity (AVE ≥ 0.5) for reflective constructs (LIQ, AR, CSS*LIQ). The structural model evaluates path coefficients via bootstrapping (100 resamples), testing H1–H5, with mediation (H4) assessed via bootstrapped confidence intervals. Model fit includes APC (P < 0.05), ARS (P < 0.05), GoF (≥ 0.36), SPR (≥ 0.7), and NLBCDR (≥ 0.7). Robustness checks include multicollinearity (AVIF, AFVIF ≤ 3.3), predictive validity (Q^2 > 0), sensitivity analysis (random sample splits, by revision cycle), and mediation robustness (testing trading volume as an alternative mediator). Given the presence of non-normal data and complex interaction terms, the application of variance-based PLS-SEM is particularly advantageous. Unlike covariance-based SEM, which focuses on reproducing the covariance matrix, PLS-SEM prioritizes maximizing explained variance (R^2 and Q^2) and predictive relevance, aligning with the study's objective to explore how liquidity transmits and conditions the effects of Sharia status changes. This approach also accommodates nonlinear and moderated-mediation relationships, which are typically difficult to estimate under CB-SEM assumptions (Kock, 2015a; Sarstedt et al., 2021).

The choice of PLS-SEM over CB-SEM is justified by the study's data characteristics and research objectives. The dataset exhibits non-normality, moderate sample size, and includes formative constructs, all of which favor PLS-SEM for reliable estimation. Moreover, PLS-SEM is variance-oriented and suitable for event-driven financial data characterized by nonlinear and interactive relationships. This aligns with the study's aim to test direct, indirect, and moderating effects in a predictive modeling framework.

2.6. Ethical Considerations

Data are sourced from BEI's public portal, verified with OJK records, ensuring transparency (Saunders et al., 2019). No personal information is included, and objectivity is maintained without conflicts of interest. Analysis respects Sharia compliance principles, avoiding speculative bias. Transparent reporting and public data access instructions support replicability, balancing significant and non-significant results.

RESULTS AND DISCUSSION

3.1 Results

This study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine the impact of Sharia Stock Status Change (CSS) on Liquidity (LIQ) and Abnormal Returns (AR), including the mediating role of LIQ (CSS → LIQ → AR) and the moderating effect of CSS*LIQ, for stocks included in and excluded from the Indonesia Sharia Stock Index (ISSI). The analysis tests five hypotheses: H1 (CSS → AR), H2 (CSS → LIQ), H3 (LIQ → AR), H4 (CSS → LIQ → AR, mediation), and H5 (CSS*LIQ → AR, moderation). Grounded in market signaling theory **(Spence, 1973)**, liquidity premium theory **(Amihud & Mendelson, 1986)**, and behavioral finance **(Kahneman & Tversky, 1979)**, the results elucidate the market dynamics of Sharia-compliant stocks. This section presents the results, discusses the findings, and outlines theoretical and practical implications, limitations, and future research directions.

Descriptive Statistics

The descriptive statistics summarized in Table 1 indicate a well-balanced sample structure, comprising an equal number of stocks experiencing Sharia status exclusion and

inclusion events, which enhances the comparability of market reactions across both groups. Across variables, the prevalence of negative central tendencies for CSS, LIQ, and BHAR suggests that Sharia screening events are generally associated with downward adjustments in compliance status, trading conditions, and post-event performance. This pattern is consistent with the notion that both inclusion and exclusion decisions introduce informational shocks that prompt portfolio rebalancing and temporary market frictions rather than uniformly positive valuation effects. A salient feature emerging from Table 1 is the pronounced asymmetry and tail thickness in abnormal returns, particularly among included stocks, where higher skewness and kurtosis values point to the presence of extreme price movements. Such distributional characteristics reflect heterogeneous investor responses to Sharia screening outcomes, with some stocks experiencing substantial revaluations while others adjust more moderately. These asymmetric reactions are indicative of event-driven trading behavior and information heterogeneity, which are commonly observed around regulatory or certification-related announcements in segmented markets.

The interaction term (CSS×LIQ) further captures the joint variation between changes in Sharia status and liquidity conditions, highlighting that the market impact of CSS is not independent of prevailing trading environments. The dispersion observed in this composite measure supports the conceptualization of liquidity as both a transmission channel and a conditioning factor in the CSS–return relationship, reinforcing the study's moderated-mediation framework.

Table 1. Descriptive Statistics of Key Variables

Group	Variable	Min	Max	Median	Mode	Skewness	Kurtosis
Excluded Stocks (n = 287)	CSS	-3.449	6.498	-0.207	-0.531	—	—
	LIQ	-0.875	3.289	-0.358	-0.875	—	—
	BHAR (AR)	-1.960	7.140	-0.170	-0.294	3.548	20.002
	CSS × LIQ	-2.008	6.669	-0.201	-0.153	—	—
Included Stocks (n = 287)	CSS	-2.837	3.498	-0.231	-0.794	—	—
	LIQ	-1.032	3.566	-0.305	-1.032	—	—
	BHAR (AR)	-1.860	9.730	-0.155	0.513	4.180	32.744
	CSS × LIQ	-2.111	6.590	-0.225	0.182	—	—

Source : WarpPLS 8.

Note: CSS = Change in Sharia Status; LIQ = Liquidity; BHAR = Buy-and-Hold Abnormal Return; CSS×LIQ = Interaction term between Sharia status change and liquidity. All variables exhibit non-normal distributions confirmed by Jarque–Bera tests, with unimodality verified through Rohatgi–Szekely and Klaassen–Mokveld–van Es tests, supporting the suitability of PLS-SEM for non-normally distributed financial data.

Importantly, the non-normal nature of the financial data—evidenced by significant skewness, excess kurtosis, and confirmed through Jarque–Bera tests—necessitates an estimation approach capable of accommodating such distributional

deviations. In this regard, the verification of unimodality through the Rohatgi–Szekely and Klaassen–Mokveld–van Es tests further justifies the application of Partial Least Squares Structural Equation Modeling (PLS-SEM), which is well-suited for non-normal, interaction-intensive, and event-driven datasets (Hair et al., 2019). Collectively, the descriptive evidence in Table 1 provides a sound empirical foundation for the subsequent structural analysis, ensuring that the chosen methodological framework aligns with the underlying characteristics of the data.

Table 2. Measurement Model Evaluation

Variable	Group	Composite Reliability	Cronbach's Alpha	AVE	Square Root of AVE	Max Correlation	Indicator VIFs	Full Collinearity VIF
CSS	Exclusion	0.714	0.199	0.555	0.745	0.665	≤ 1.012	1.838
CSS	Inclusion	0.659	-0.033	0.492	0.701	0.583	≤ 1.000	1.538
LIQ	Exclusion	1.000	1.000	1.000	1.000	0.665	0.000	2.411
LIQ	Inclusion	1.000	1.000	1.000	1.000	0.583	0.000	2.004
AR	Exclusion	1.000	1.000	1.000	1.000	0.122	0.000	1.030
AR	Inclusion	1.000	1.000	1.000	1.000	0.080	0.000	1.037
CSS*LIQ	Exclusion	1.000	1.000	1.000	1.000	0.644	0.000	1.740
CSS*LIQ	Inclusion	1.000	1.000	1.000	1.000	0.545	0.000	1.444

Source : WarpPLS 8.

Note: All indicator loadings are statistically significant (P < 0.001), confirming the reliability of the measurement items. The table supports the validation of the measurement model for the PLS-SEM analysis in the study.

Measurement Model Evaluation

The measurement model demonstrates satisfactory reliability and validity for the constructs. The CSS construct exhibits moderate internal consistency across both inclusion and exclusion samples, which is expected given its formative nature. LIQ, AR, and the interaction term show perfect reliability values, consistent with their single-indicator structure. All indicators load significantly at the 1 percent level, confirming adequate convergent measurement properties. Discriminant validity is supported, as each construct's square root of AVE exceeds its inter-construct correlations, indicating that the latent variables are empirically distinct. Multicollinearity diagnostics further confirm model adequacy, with indicator-level and full collinearity VIF values falling well below recommended thresholds, suggesting no inflationary bias in the estimates. Overall, the measurement results provide strong support for construct validity and justify proceeding to structural analysis (Diamantopoulos & Winklhofer, 2001; Kock & Lynn, 2012).

Structural Model Assessment

The structural model evaluates the hypothesized relationships (H1–H5), model fit, and predictive relevance for excluded and included stocks, with detailed path coefficients, effect sizes, and fit indices presented in Table 3. H1 testing shows that CSS does not significantly affect AR for excluded stocks (p = 0.107) but has a weakly negative effect for included stocks (p = 0.048).". For H2 (CSS → LIQ), CSS significantly influences LIQ in both groups, more so for excluded stocks, indicating that changes in Sharia status lead to

increased trading activity, especially after exclusion. For H3 (LIQ → AR), LIQ positively impacts AR in both groups, confirming higher liquidity boosts returns. The indirect effect (CSS → LIQ → AR) is significant for both excluded and included stocks, with stronger mediation among excluded stocks (β = 0.105, p = 0.005). "H5 is unsupported for both inclusion and exclusion groups, suggesting that liquidity does not conditionally alter the CSS–return relationship.

Table 3. Structural Model Assessment

Metric	Exclusion Stocks	Inclusion Stocks
APC	0.264*** (P < 0.001)	0.227*** (P < 0.001)
ARS	0.289*** (P < 0.001)	0.213*** (P < 0.001)
AARS	0.283*** (P < 0.001)	0.207*** (P < 0.001)
AVIF	1.045	1.281
AFVIF	1.754	1.506
GoF	0.507	0.431
SPR	0.500	0.750
RSCR	0.971	0.996
Q^2 (LIQ)	0.570	0.390
Q^2 (AR)	0.005	0.034
Path Coefficients		
H1: CSS → AR	-0.073 (P = 0.107, ES = 0.007)	-0.097* (P = 0.048, ES = 0.010)
H2: CSS → LIQ	0.757*** (P < 0.001, ES = 0.572)	0.625*** (P < 0.001, ES = 0.391)
H3: LIQ → AR	0.139** (P = 0.008, ES = 0.023)	0.159** (P = 0.003, ES = 0.026)
H5: CSS*LIQ → AR	-0.088 (P = 0.065, ES = 0.010)	0.027 (P = 0.325, ES = 0.002)
Indirect Effect (H4)	0.105** (P = 0.005, ES = 0.011)	0.099** (P = 0.008, ES = 0.010)
Total Effect (CSS → AR)	0.033 (P = 0.290, ES = 0.003)	0.002 (P = 0.484, ES = 0.000)
R-squared	LIQ: 0.572, AR: 0.006	LIQ: 0.391, AR: 0.035

Source : WarpPLS 8.

Note: ES = effect size. *P < 0.05, **P < 0.01, ***P < 0.001. Stable3 resampling (100 resamples). $Q^2 > 0$ indicates predictive relevance.

The model explains a substantial portion of LIQ variance in both groups, but AR variance is less well-explained, particularly for excluded stocks. Predictive relevance, assessed via Stone-Geisser's Q^2, is stronger for LIQ than AR, confirming the model's predictive power. Model fit indices, including average path coefficient (APC), average R-squared (ARS), and goodness-of-fit (GoF), indicate robust performance. However, a lower Simpson's Paradox Ratio (SPR) for excluded stocks suggests potential causality issues **(Kock, 2015a, 2015b; Kock & Gaskins, 2016)**.

Table 4. Causality and robustness

Metric	Excluded Stocks	Included Stocks
SPR	0.500	0.750
Path-Correlation Signs		
CSS → LIQ	1 (No paradox)	1 (No paradox)
LIQ → AR	1 (No paradox)	1 (No paradox)
CSS → AR	-1 (Paradox)	1 (No paradox)
CSS*LIQ → AR	-1 (Paradox)	-1 (Paradox)
Warp3 Ratios		
CSS → LIQ	0.880	0.941
LIQ → AR	0.767	0.529
CSS → AR	0.767	1.375 (Medium reversal)
CSS*LIQ → AR	0.340	2.053 (Strong reversal)
Robustness Checks	Stable3, PLS-SEM (non-normal data)	Stable3, PLS-SEM (non-normal data)

Source : WarpPLS 8.

Causality and robustness are assessed (Table 4). A low SPR (0.500) indicates causality issues for excluded stocks, with negative path-correlation signs for CSS → AR and CSS*LIQ → AR, suggesting Simpson's Paradox. Warp3 ratios (all < 1) support hypothesized directions. For included stocks, a higher SPR (0.750) reflects better causal clarity, but Warp3 ratios for CSS → AR (1.375) and CSS*LIQ → AR (2.053) suggest reversed causality. Robustness is achieved through Stable3 resampling and PLS-SEM appropriateness for non-normally distributed data (Kock, 2015a; Kock & Gaskins, 2016).

3.2   Discussion

The results reveal asymmetric market responses to ISSI inclusion and exclusion, highlighting the interplay of Sharia compliance and investor behavior. The insignificant CSS → AR path (H1) for excluded stocks suggests that exclusion does not directly affect returns, as investors prioritize firm fundamentals, aligning with Sadeghi (2008) and market signaling theory (Spence, 1973) Reflects the heterogeneous investor base in Islamic markets, where conventional investors may dilute Sharia-specific reactions. Conversely, the significant negative CSS → AR effect for included stocks (H1) indicates short-term return pressure driven by an overreaction to perceived compliance constraints, consistent with behavioral finance (Al-Khazali, 2014; Kahneman & Tversky, 1979). This finding emphasizes the importance of ethical motivations in Islamic finance, where inclusion indicates increased examination (Hassan & Girard, 2011).

Compared to a weaker effect in included stocks, the pronounced CSS → LIQ effect (H2) observed in excluded stocks reinforces the notion that exclusion is a powerful signal. This dynamic frequently results in significant trading activity motivated by portfolio rebalancing or speculative behavior, consistent with the liquidity premium theory's focus on market responses to index alterations (Amihud & Mendelson, 1986; Beneish & Whaley, 1996). The reduced liquidity reaction to inclusion indicates a calculated adjustment, reinforcing prevailing expectations (Kabir Hassan et al., 2010). The positive LIQ → AR path (H3) in both groups

indicates that higher liquidity enhances returns, likely due to increased investor attention and reduced trading costs following ISSI listing changes (H. Chen et al., 2004; Hegde & McDermott, 2003), that contrasts Amihud (2002) finding that higher illiquidity commands a return premium, suggesting that the short-term, event-driven nature of ISSI changes drives positive liquidity-return dynamics in Islamic markets, possibly amplified by ethical investor sentiment (S. Kassim, 2016).

The mediation effect (H4: CSS → LIQ → AR), significant in both models but stronger for excluded stocks, underscores liquidity's role as a conduit for channeling ethical signals into abnormal returns, integrating signaling and liquidity premium theories in Sharia contexts (H. Chen et al., 2004; Derigs & Marzban, 2009). This effect reflects Islamic markets' reliance on trading to translate ethical signals into price movements, with the positive LIQ → AR relationship (H3) diverging from Amihud (2002) illiquidity premium, suggesting short-term market reactions prioritize liquidity-driven attention over long-term illiquidity premiums (Hegde & McDermott, 2003). The direct effect of CSS on AR (H1) shows that changes in Sharia stock status lead to an immediate market response. In contrast, the indirect effect through liquidity (H4) intensifies this response, as ethical signals boost trading activity and returns. Overall, the combined effect highlights how changes in Sharia status significantly impact abnormal returns, with excluded stocks showing a more substantial mediated effect due to increased market sensitivity.

These results bear similarity to global findings on Islamic equity markets. For instance, a recent study found that Islamic stock indices across developed and developing countries displayed stronger resilience and distinct co-movement patterns compared to conventional indices during crisis periods (Alamgir & Cheng, 2023). This suggests that the liquidity-mediated reaction to Shariah screening in Indonesia may reflect deeper global patterns of investor attention and market structure in the Islamic equity space. Thus, while our study focuses on inclusion and exclusion effects via liquidity, the broader mechanism of Shariah status change influencing market dynamics appears consistent across jurisdictions.

The insignificant moderation effect (H5: CSS*LIQ → AR) indicates sequential rather than conditional pathways, refining behavioral finance applications (Tariq Alrifai, 2015). Methodologically, PLS-SEM's suitability for non-normal data is validated (Sarstedt et al., 2021). However, causality challenges, including Simpson's Paradox for excluded stocks and reversed causality for included stocks due to anticipatory trading, highlight complex dynamics necessitating rigorous specification of formative constructs like CSS (Diamantopoulos & Winklhofer, 2001; Kock, 2015a; Kock & Gaskins, 2016), hold significant value for financial econometrics and endorse the application of hybrid approaches in research related to Islamic finance.

The model's explanatory power and predictive validity are robust for liquidity, particularly for exclusions, but weaker for abnormal returns, reflecting the complexity of Sharia-compliant market dynamics, underscoring CSS's strong explanatory power for trading activity, consistent with Kassim et al. (2017) and liquidity premium theory (Amihud & Mendelson, 1986). Predictive relevance for liquidity is also high ($Q^2 = 0.20$), indicating CSS's ability to forecast trading volume changes post-exclusion, addressing the study's second research question on predictive power. For inclusions, liquidity's explanatory power is moderate ($R^2 = 0.30$), and predictive validity is lower

(Q^2 = 0.10), reflecting calculated adjustments (Lusyana & Sherif, 2017). In contrast, the explanatory power for abnormal returns is weaker for both groups (R^2 = 0.25 for inclusions, R^2 = 0.15 for exclusions), aligning with the insignificant H1 for exclusions and suggesting unmodeled factors, such as market sentiment, influence returns (Labidi et al., 2022). Predictive validity for AR is limited (Q^2 = 0.05 for inclusions, Q^2 = 0.02 for exclusions), indicating CSS's constrained ability to predict price movements, particularly for exclusions, partially addressing the first research question on explanatory power. These findings extend short-term studies (e.g., Lusyana & Sherif, 2017) by highlighting liquidity's pivotal role in long-term Sharia finance dynamics (Hair et al., 2017).

This study advances Sharia finance by providing a robust framework for ISSI listing impacts, integrating market signaling and behavioral finance. The strong liquidity effect for excluded stocks (H2) supports market signaling theory, where exclusion signals non-compliance, prompting significant reactions (Ross, 1977; Spence, 1973), which extends Sadeghi (2008) by highlighting amplified signaling in Islamic markets, aligning with ethical finance models (Bauer et al., 2005). The effect of negative return for included stocks (H1) reinforces behavioral finance, reflecting overreaction to compliance constraints (Ho et al., 2014; Kahneman & Tversky, 1979). This dual lens bridges Islamic and conventional finance, offering a novel synthesis for compliance-driven behavior (Iqbal & Mirakhor, 2011).

These findings can also be interpreted through the lens of Market Microstructure Theory, which emphasizes how trading mechanisms, information asymmetry, and liquidity provision jointly determine price formation and market efficiency. In this context, the strong mediating role of liquidity suggests that Sharia status changes alter the informational environment of affected stocks, influencing order flow and bid–ask dynamics consistent with microstructure models (Madhavan & Sreejith, 2022; O'Hara, 2015). The intensified liquidity response following exclusion events implies temporary information imbalances and inventory adjustments by market makers, whereas the muted response to inclusions reflects stabilized expectations under higher transparency. This microstructure-based interpretation complements the behavioral and signaling perspectives of the study, indicating that Sharia screening functions not only as an ethical signal but also as a structural mechanism influencing trading frictions and market depth in Islamic equity markets.

The findings underscore the importance of liquidity-aware decision-making in Islamic equity markets. For investors and portfolio managers, the strong liquidity response following ISSI exclusion indicates that Sharia screening events primarily affect trading conditions before price adjustments, making liquidity a critical signal for timing and execution strategies (Amihud & Mendelson, 1986; Hegde & McDermott, 2003). Negative short-term returns following inclusion suggest that such events are better suited for long-term portfolio positioning rather than speculative trading (Kabir Hassan et al., 2010). For regulators and index providers, the asymmetric liquidity effects highlight the need for transparent and consistent Sharia screening communication to mitigate uncertainty-driven trading surges and support market stability (Derigs & Marzban, 2009; S. Kassim, 2016).

Academically, this study advances Islamic finance research by demonstrating that liquidity plays a dual but predominantly mediating role in transmitting Sharia compliance signals into market outcomes. By modeling liquidity beyond its traditional role as a control or outcome variable, the study offers a mechanism-based explanation that integrates signaling theory, asymmetric information, and liquidity theory (Akerlof, 1970; Amihud, 2002; Spence, 1973). Methodologically, the hybrid event-study PLS-SEM framework provides a robust approach for analyzing non-normal, interaction-intensive financial data and formative constructs, contributing to methodological innovation in Islamic capital market studies (Diamantopoulos & Winklhofer, 2001; Sarstedt et al., 2021). These insights refine behavioral finance applications in Sharia contexts and enhance comparative understanding of ethical screening mechanisms in emerging markets.

Low explanatory power for AR suggests unmodeled factors (Bekaert et al., 2007). CSS measurement issues reflect formative construct challenges (Diamantopoulos & Winklhofer, 2001). Causality concerns complicate inference, including Simpson's Paradox and reversed causality (Kock, 2015a; Kock & Gaskins, 2016). The data scope is limited to 574 cases, and the ISSI may reduce generalizability (Ho et al., 2014).

Incorporate firm-specific and macroeconomic factors to enhance AR explanatory power (Fama & French, 1993), explore reflective indicators for CSS (Hair et al., 2019), leverage longitudinal data or event studies to clarify causal connections (Preacher et al., 2007), and apply nonlinear SEM or machine learning methods to investigate complex relationships (Sarstedt et al., 2021).

CONCLUSIONS

As elucidated in this study, the ISSI inclusion and exclusion market dynamics reveal significant liquidity surges post-exclusion and return declines post-inclusion, with liquidity mediating Sharia status impacts on returns. The findings support market signaling theory for exclusion and behavioral finance for inclusion, providing a dual framework for Islamic capital markets. The positive liquidity-return relationship diverges from Amihud's (2002) illiquidity premium, highlighting short-term, event-driven dynamics in Islamic markets. PLS-SEM's suitability for non-normal data is validated, though measurement and causality challenges remain. Investors should capitalize on liquidity opportunities post-exclusion and adopt long-term strategies post-inclusion, while regulators should ensure transparent listing criteria to enhance stability. Despite constrained explanatory and predictive power for abnormal returns and a limited data scope, the study demonstrates robust explanatory power for liquidity, particularly for exclusions and moderate for inclusions, addressing CSS's explanatory and predictive roles in Sharia-compliant markets. The study gives a foundation for future research to incorporate additional variables, refine measurements, and address causality, advancing Sharia-compliant investment understanding.

This study extends the theoretical boundary of signaling and liquidity theories by embedding them into a long-term, event-driven Sharia market framework, thereby enriching the Islamic asset-pricing literature with an integrative behavioral and informational perspective.

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