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PRIMARY RESEARCH

Do Sharīʿah-Compliant Firms Experience Low Information Asymmetry and Stock Price Synchronicity? Evidence from Dow Jones Islamic Market Index

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Abstract

Purpose: This study examines the impact of voluntary disclosures and earnings management activities on stock price synchronicity between Sharīʿah-compliant and conventional business model firms. We investigate if Sharīʿah-compliant firms having additional voluntary disclosures and lower earnings management activities report a lower level of stock price synchronicity, or is it similar to conventional firms?

Design/Methodology/Approach: We used data for 50 Sharīʿah-compliant firms and 50 conventional non-financial firms listed in Dow Jones Islamic Market Index and Dow Jones Large-Cap Index, respectively, from 2013 to 2022. The study applied panel data regression and controlled endogeneity by applying Generalized Method of Moments. The study also employed pre-requisite diagnostic tests.

Findings: The findings of this study suggest that Sharīʿah compliance has no effect on the stock price synchronicity in comparison to the conventional firms. In addition, the earnings quality using voluntary disclosure of the information and discretionary accruals are also found to be similar to conventional firms. The results are in line with the view that environment and regulations influence firms more than just listing in the Sharīʿah compliance index.

Significance: The study contributes by examining whether Sharīʿah-compliance, earnings management, and voluntary disclosures impact the stock price synchronicity in the developed economies. It is found that the impact of Sharīʿah-compliance on stock price synchronicity is limited in U.S due to already higher disclosure standards.

Implications: To improve stock price informativeness and attract investors, companies operating in Sharīʿah-compliant markets may need to concentrate on enhancing their voluntary disclosure practices and reducing earnings management. So, the regulators

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and standard-setting bodies may consider enacting rules or legislation to encourage higher levels of voluntary disclosures and prohibit earnings management practices.
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JEL Classification: E41, G18, G21

INTRODUCTION

Efficient market theory suggests that stock prices show not only firm-specific but also market-wide information. Morck et al., (2000) in their study showed the use of a methodology called special price synchronicity (SPS) to try and quantify the amount of distinct information being assimilated in the stock market prices. A bigger value of R2 from the market model is interpreted as a reflection of more systematic or market system-wide variations in the stock price information, specifically related to firms, just like Arbitrage pricing theory (APT) and Capital Asset Pricing Model (CAPM) use only the systematic factors. The firms with lower R2 values are regarded firms which quantify a greater amount of firm-specific information. Previous research has extensively examined the factors influencing unexplained fluctuations in return volatility, often measured as low-price synchronicity (SPS). A seminal study by Roll (1988) investigated whether this SPS arises from an abundance of proprietary information or inaccuracies in pricing. These inquiries have highlighted the potential significance of company-specific information in driving SPS (Durnev et al., 2003, 2004). Contemporary investigations have harnessed SPS to probe the impact of a firm's information environment on its stock prices. Reduced SPS often suggests greater prevalence of firm-specific information (Morck et al., 2000; Bae, Kang, & Wang, 2011; Boulton, Smart, & Zutter, 2010; Cremers & Pareek, 2016). Prior studies have employed SPS to gauge stock price informativeness across diverse contexts, revealing that lower SPS corresponds to heightened firm-specific information and increased efficiency in corporate investments (Durnev et al., 2004).

Furthermore, it is contended that reduced synchronicity has been associated with increased transparency within financial systems (Jin & Myers, 2006). Additionally, as indicated by Haggard et al., (2008) and Hutton et al. (2009), high-quality disclosures have been found to reduce opacity in earnings reporting. SPS is also correlated with improved governance in capital markets (Daouk et al., 2006), stronger property protection rights (Morck et al., 2000), higher audit quality (Gul et al., 2010; Sami & Zhou, 2008), the adoption of IFRS (Beuselinck et al., 2008), and an increased number of female board members (Gul et al., 2011). For our study, SPS serves as a proxy for informativeness due to its common application in finance research to quantify the integration of firm-specific information into stock prices. SPS captures the extent to which stock prices move in tandem, reflecting the level of firm-specific information incorporated into stock prices.

Francis et al., (2008) discussed that firm's information asymmetry and agency issues create problems in efficient functioning of capital markets. In this context, the voluntary disclosures can reduce these issues to a significant level. Jin and Myers, (2006) explained that in opaque firms, the information is not disseminated symmetrically to the capital markets which results in higher SPS. Hutton et al., (2009) directly explored the relationship between earnings quality and SPS and reported that the earnings opaqueness reduces the

level of firm-specific information, so it is associated with higher price synchronicity. However, Teoh et al., (2009) report an opposing relationship, and Gul et al., (2011) did not identify a significant connection. These conflicting outcomes in prior studies and (Dasgupta, et al., 2010) argue that more transparent prices can increase SPS, which is contrary to common wisdom. Understanding the correlation between SPS and a firm's information environment is vital, particularly in light of the growing emphasis on price synchronicity in accounting literature.

In the framework of this study, the market model was used to analyze how firm-specific information affected stock price synchrony. According to the results, voluntary disclosures and earnings management practices have a big effect on stock price synchrony, which in turn influences stock price informativeness. In particular, the study discovered that more stock price synchronization and more firm-specific information included into stock prices are connected with higher levels of voluntary disclosures and lower levels of earnings management. A number of studies have demonstrated that higher degrees of information asymmetry can result in poorer stock price informativeness, indicating that the impact of a firm's information asymmetry on stock price informativeness is a significant topic in finance studies. According to the results of this study, voluntary disclosures and earnings management practices may help to lessen information asymmetry and improve stock price synchrony, which may lead to higher stock price informativeness.

Earnings management practices can contribute to higher SPS as firms manipulate their financial statements to mask underlying performance and convey a false sense of stability to the market. (Cheng & Warfield, 2005). The presence of earnings management can increase SPS by obscuring firm-specific information and amplifying the influence of common factors on stock prices (Roychowdhury, 2006). Firms which engage in earnings management-related activities tend to exhibit higher SPS as their reported earnings become less informative and fail to capture the true underlying performance of the company (Dhaliwal et al., 2011). Earnings management activities can result in increased SPS as investors struggle to distinguish between genuine firm-specific news and manipulated earnings signals (Gong et al., 2009). These statements highlight the consensus in the literature that earnings management practices can distort financial information, reduce the informativeness of earnings, and contribute to higher SPS. The categories of expenses include non-discretionary and discretionary costs. Housing, taxes, and debt repayment are examples of non-discretionary costs; discretionary costs are any out-of-pocket spending that is not strictly necessary.

The more specific novelty of this work is that we explore the effect on SPS in Sharīʿah-compliant and non-compliant firms. The reason is that Sharīʿah-compliant firms are different from their conventional counterpart due to additional Sharīʿah filters. Their structure must be aligned with the permitted level of debt. Moreover, Sharīʿah-compliant firms have more asset-backed activities and do not participate in practices like gambling and taking on excessive financial risk (Hasan & Dridi, 2010; Saleh & Zeitun, 2009; Belkhir & Maghyereh, 2016).

Furthermore, it is essential to delve deeper into this subject as Islam encourages its adherents to uphold truthfulness in information disclosure and to fulfil their responsibilities to the best of their capabilities. In the context of firms, Sharīʿah Compliance places a

heightened emphasis on social responsibility and comprehensive disclosure (Haniffa & Hudaib, 2002; Ousama et al., 2012). Full disclosure is directly related to a better information environment, and social accountability equates to ethical reporting. In this context, firms with Sharīʿah compliance are expected to disclose more reliable, transparent financial information, free from any material misstatement and manipulations (Abdulrahman et al., 2024; Alajmi & Al-Shammari, 2024; Mukhibad, 2022; Abdul-Rahman, 2012; Ahmad & Ibrahim, 2002; Sulaiman, 2001). So, we expect that the Sharīʿah-compliant firms should report a lower level of SPS in comparison to their conventional counterpart.

LITERATURE REVIEW

Stock Price Synchronicity and Firm Fundamental information environment.
Contemporary financial theory posits the idea that markets should operate with rationality. The CAPM is the earliest model capturing market rationality. The concept of Price Synchronicity Theory has evolved over time, with its origins dating back to Roll's work in 1988 (Roll, 1988). Roll observed that the degree to which stock movements align with market indices hinges on the impounding of market-level information and firm-specific in stock prices. Hence, SPS serves as a metric to capture company-specific information. This metric encompasses the market index, and its application is rooted in the understanding that company returns are influenced by a range of non-diversifiable factors and distinct corporate attributes.

In the study conducted by (Lagorade-Segot & Lucey, 2008) it is demonstrated that efficient markets aid investors in making productive investment allocations. Morck et al., (2000) embarked on an investigation that empirically substantiated the higher level of stock price synchronization in developed countries. Their research outcomes unveiled that, among a range of factors, the predominant catalyst for this phenomenon stemmed from insufficient safeguards for property rights in emerging economies. This insufficiency obstructs well-informed decision-making, consequently leading to heightened market volatility. Morck et al., (2000) introduced the SPS methodology as a tool to gauge the degree of precise information integrated into stock prices. Elevated R-squared values signify a larger share of market-driven fluctuations in stock prices. This variance aligns with the expectations of models such as CAPM and APT, which employ systematic information to value stocks. Conversely, lower R-square values signify a stronger influence of firm-specific fundamentals on stock prices. This observation is often associated with economies characterized by lower GDP per capita. This concept was further examined by (Li et al., 2014), who affirmed that R-squared values decrease gradually as countries progress and mature. This decline is particularly evident in nations boasting robust regulatory frameworks, lower corruption levels, and more open equity markets.

The R-squared value serves as an indicator of the goodness of fit in a statistical model. Higher values denote a stronger fit while controlling other factors. In the context of the CAPM model, R-squared showcases the correlation between stock and market returns. These stock returns encapsulate information garnered by investors at the market, industry, and company levels, potentially reflecting as future actual returns. A high R-squared value

signifies that company returns are heavily influenced by market returns, whereas lower values indicate that company-specific fundamentals have a greater impact than market factors (Roll, 1988).

Utilizing a similar methodology, Jin and Myers (2006) delved into the subject, and subsequent investigations employing this framework reached a consensus that R-squared serves as an effective gauge of synchronicity (Hutton et al., 2009; Chan & Hameed, 2006). Further scrutiny exposed a tendency among analysts in developing nations to concentrate more on broad market trends, primarily due to the challenges associated with accessing firm-specific data. The limited transparency in these regions, partly attributed to relaxed regulatory oversight, compels analysts to ground their forecasts on macroeconomic market factors instead of individual intrinsic determinants.

Voluntary Disclosure and Stock Price Synchronicity

The established literature indicates that enhancing the SPS metric is feasible through a more favorable informational context tailored to individual firms. This improved environment can be cultivated through heightened voluntary disclosures (King, 1966). In line with the argument presented by Grossman and Stiglitz (1980), a direct link is established between firm-specific voluntary disclosures and SPS. They contend that there is an associated cost with information acquisition, potentially leading to diminished returns. This very notion is once again substantiated by (Durnev et al., 2003). Conversely, a scenario with lower levels of information disclosure could prompt investors to rely more heavily on industry standards for their trading decisions. This reliance, as highlighted by (Haggard et al., 2008), could amplify the correlation between firm and industry prices.

Chan and Kang (2012) research contributes further by providing evidence that heightened co-movement is a consequence of increased systematic volatility, subsequently leading to greater synchronicity. In their study, the S&P 500 index displays elevated synchronicity in stocks associated with improved liquidity. Empirical findings by Chan and Kang also point out that heightened synchronicity corresponds to elevated information asymmetry.

H1: Voluntary Disclosure is negatively associated with Stock Price Synchronicity.

Earnings Management

A commonly accepted definition of earnings management pertains to situations where managers exercise their discretion in financial reporting and transaction structuring to alter financial statements. This practice is employed with the intention to deceive certain stakeholders regarding actual performance or to influence outcomes tied to contractual obligations contingent on reported financial figures. Expanding our comprehension, we turn to the fraud triangle framework proposed by (Li, 2012). This framework illuminates that instances of fraud tend to emerge when there exists a compelling incentive or pressure to manipulate earnings. Substantiating evidence in the literature highlights patterns of recurrence, incentives, and potential advantages garnered by firms capable of meeting or surpassing specific performance benchmarks. Notably, Bhojraj et al., (2009) have documented that firms engaged in earnings management reap immediate gains in contrast to those opting to abstain from manipulating earnings to satisfy benchmark criteria. A

second rationale lies in the opportunity to engage in earnings management by altering tangible business activities. Firms resort to both manipulation of accruals and tangible operations to effectively manipulate earnings, as substantiated and illustrated by the findings of (Cohen & Zarowin, 2010).

Earnings Management and Stock Price Synchronicity

Empirical research outcomes concerning the market implications of elevated earnings quality and accruals quality corroborate the assertions put forth by (Lambert et al., 2007) in their theoretical framework and (Easley & O'Hara, 2004) that heightened earnings quality contributes to a reduction in a firm's capital costs. Moreover, their investigations reveal that enhanced earnings quality leads to a general reduction in the cost of equity capital. Noteworthy in this context is the work of Dechow and Dichev (2002), who ascertain that the impact of earnings quality on the cost of equity capital is most pronounced. This phenomenon arises from the reality that accrual quality encompasses the variability in translating earnings into operational cash flows, a pivotal facet of a firm's payoff structure. The implications of these findings bear particular significance for market investors, as highlighted by (Francis et al., 2004).

Taking a deeper dive, prior empirical inquiries have dissected accruals quality into two distinct components: the inherent and the discretionary aspects. Within this framework, it is discerned that the pricing effect is more pronounced within the inherent component. Previous studies have explored the notion that a lower level of stock price synchronicity (SPS) is attributable to high level of firm-specific information already impounded into prices. In support of this, Roll (1988) demonstrated an augmentation in R-squared values subsequent to the exclusion of days when a firm's presence was absent from financial press mentions.

H2: The extent of Discretionary accruals is positively associated with Stock Price Synchronicity.

Stock Price Synchronicity and Sharīʿah Compliance

The existing body of literature on SPS has endeavored to elucidate the intricate connections between diverse financial variables, such as gross domestic product, earnings quality fluctuations, and the overall information milieu. These efforts have been directed towards deciphering the underlying causes behind stock co-movements. In this study, we aim to uncover the latent relationship between stock co-movements and the characteristics of Sharīʿah compliance.

An exploration into the influence of speculative price sensitivity on market volatility within the MENA region was undertaken by (Farooq et al., 2018). Their findings indicated that SPS serves as a more effective predictive measure during periods of low volatility. It is important to note that these outcomes were derived from an analysis of conventional firms in emerging markets. Another investigation by Hermes and Emanuels (2015) delved into the interplay between cultural dynamics and voluntary disclosure. This inquiry focused on voluntary disclosures stemming from internal financial controls. Through a comprehensive evaluation of data from 29 different countries, these researchers concluded that cultural influences significantly impact corporate governance practices and voluntary disclosures.

Consequently, it becomes evident that firms disseminating greater firm-specific information tend to exhibit lower levels of stock price co-movement.

Sharīʿah compliance operates as a societal construct with substantial implications for shaping cultural norms. Firms adhering to Sharīʿah principles display heightened ethical standards in their business transactions, a characteristic rooted in the Islamic culture. This orientation, in turn, exerts influence on their financial outcomes, the transparency of information, and the disclosure of their business activities. Sharīʿah-compliant organizations tend to provide more extensive details regarding their operations compared to those not adhering to Sharīʿah principles. Several investigations have delved into the influence of religion on the financial and economic behavior of firms when compared to their non-Sharīʿah counterparts. The commitment to Sharīʿah compliance highlights a firm's commitment to wider societal welfare, diverging from the traditional focus solely on shareholder wealth maximization. Notably, Naz et al., (2017) observed discernible distinctions in the financial profiles of Sharīʿah-compliant firms in comparison to conventional ones. Such firms are mandated to provide more detailed firm-specific information, contributing to a consensus in the literature about the influence of Sharīʿah compliance on the accuracy of disseminated information.

Further insights are gleaned from the study conducted by (McGuire et al., 2010), wherein Sharīʿah-compliant firms demonstrated a greater inclination towards reporting irregularities while divulging firm-specific information to external investors. A consistent theme in previous research is the notion that firms seeking Sharīʿah compliance are especially vigilant in avoiding inaccurate reporting, driven by the ethical reporting standards mandated by Sharīʿah Law (Sulaiman, 2001), and hence, it reduces the information asymmetry (Abdulrahman et al., 2024; Alajmi & Al-Shammari, 2024; Mukhibad, 2022)

H3: The Sharīʿah compliant companies have significant negative impact on Stock Price Synchronicity.

RESEARCH METHOD

This chapter offers an exposition of the data sources employed in our study, focusing on the United States of America. We delineate the metrics adopted as proxies to calculate SPS, voluntary disclosures, and earnings management. The objective is to investigate the influence of Sharīʿah compliance on SPS while considering pertinent control variables that might impact the outcomes. This section presents a comprehensive overview of the methodological framework utilized to gauge SPS, voluntary disclosures, and earnings management. The study adopts a causal approach, aiming to assess the effects of Voluntary Disclosures, Sharīʿah compliance, and Earnings management on SPS. SPS is treated as the dependent variable, with earnings management and voluntary disclosures serving as the independent variables. In the course of this investigation, panel data methodology was harnessed to evaluate the impact of voluntary disclosures and earnings management on SPS within the context of Sharīʿah-compliant and conventional firms. Panel data analysis is a statistical technique employed to analyze data collected over a span of time from diverse entities or entities.

The temporal scope of the study spans from 2013 to 2022, selected to align with the availability of data on Sharīʿah compliance graciously provided by S&P Global indexes. Sharīʿah-compliant companies are ascertained based on their inclusion in the Dow Jones Islamic Market U.S. Large-Cap Index, an index meticulously curated by S&P, comprising solely of Sharīʿah-compliant entities in the USA. Conversely, for conventional firms considered in this study, being part of the Dow Jones U.S. Large-Cap Index served as the criterion. It's essential to emphasize that, for this research, companies included in both indexes were considered Sharīʿah-compliant.

Sharīʿah Screening Criteria

Sector-Based Screens

The application of sector-based screens adheres to the parameters established by the Sharīʿah Supervisory Board. The businesses encompassed in the following list are identified as incongruent with Sharīʿah law. A consensus prevails among most Sharīʿah scholars and boards consider these industries and their associated financial instruments as inconsistent with Sharīʿah principles, making them unsuitable for Islamic investment. While certain sectors like tobacco companies and the defense industry remain subjects of debate among contemporary Sharīʿah scholars, a prevailing stance among Sharīʿah boards advises against investment in entities involved in these domains.

In accordance with the Dow Jones Islamic Market Indices Methodology, it is required that earnings from non-compliant sources should not surpass 5% of the total revenue. For our research, we carefully curated a sample comprising 50 Sharīʿah-compliant and 50 non-compliant non-financial firms listed on the S&P Indexes. The selection of these companies was contingent on their market value, with only the top 50 companies from both indexes meeting this specific criterion. Data for the research was extracted from annual financial reports and 10K filings.

Model of Study

Our research estimated the undermentioned equations (Eq. 1 and Eq.2) to explain SPS for firm i year t:

$$SYNC_{i,t} = \beta 0_{i,t} + \beta 5SHC + \beta 3PROFIT_{i,t} + \beta 4LEV_{i,t} + \beta 2SIZE_{i,t} + \beta 1VD_{i,t} + \varepsilon I \quad (1)$$

$$SYNC_{i,t} = \beta 0_{i,t} + \beta 5SHC + \beta 3PROFIT_{i,t} + \beta 2SIZE_{i,t} + \beta 4LEV_{i,t} + \beta 1DA_{it,} + \varepsilon I \quad (2)$$

In the above models, the variable denoted as SYNC serves as the dependent variable, representing the SPS (Strategic Performance Score) of company "i" for the year "t". The variable SIZE corresponds to the logarithm of the company's total assets, while PROF signifies the company's level of profitability. LEV indicates the extent of financial leverage, calculated using the debt-to-equity ratio. Furthermore, SHC assumes a value of 1 to indicate a Sharīʿah-compliant company, and 0 otherwise. Additionally, VD, as per Equation 1, represents the voluntary disclosure score, and DA stands for Discretionary Accruals, functioning as a proxy for assessing earnings management, as outlined in Equation 2.

The market model's ability to discern between firm-specific information and market-wide fluctuations in stock prices serves as a rationale for its use in this study. Stock prices are thought to represent both firm-specific and market-wide information, according to the

market model. Researchers can gauge the percentage of systematic or market-wide movements in stock prices relative to firm-specific information by evaluating the R-square value from the market model.

Stock Price Synchronicity

The CAPM elucidates that the inherent systematic or comprehensive market risk stems from factors like the business environment, inflation, political landscape, and exchange rates within a specific country. Conversely, the unsystematic risk, also referred to as idiosyncratic risk, can be mitigated or effectively diversified within a meticulously chosen portfolio. CAPM possesses the capability to quantify market risk, thus facilitating the determination of fair value. This becomes evident when examining the CAPM formula, which computes expected return through the utilization of the Beta and risk-free rate of return, representing the market risk premium. Another critical element systematic risk measurement, that is assessed by establishing the variance between market return and risk-free stock return.

We will use the formula as under

$Er = Rf + \beta (Rm - Rf)$

When translating the CAPM formula into a regression equation format, the resulting expression would take on the following appearance.

$$R_{i,t} = \alpha + \beta(Rm,t) + \varepsilon_{i,t}$$

this equation contains Ri,t shows return anticipated, calculated using the model of market and subjected to regression against the market return, denoted as Rm. The parameter β represents the coefficient, while ε stands for the residual term encapsulating unexplained factors within the context of the market model. According to this model, stocks exhibiting high R2 values demonstrate pronounced systematic variance; conversely, those with low R2 values exhibit a more pronounced influence of company-specific variations. To convert the R2 values, which span the range from 0 to 1, for enhanced usability in regression equations, academic experts like Jin and Myers (2006) and Morck et al., (2000) propose converting them into a continuous variable, which is accomplished using the formula described below.

In order to quantify how much firm-specific information is factored into stock prices with more accuracy, the transformation of R2 is necessary for stock price synchronization. R2 is a commonly used indicator of a regression model's goodness of fit since it quantifies the percentage of variance in the dependent variable that can be accounted for by the independent variable or variables.

$SPS = Ln (R^2/1-R^2)$

This conversion yields a variable which continues and values higher numerical show greater SPS.

Voluntary disclosures

In this study, we have analyzed the absence of information using Francis et al., (2008) twenty-five-item questionnaire. This instrument comprises four sections, addressing historical performance, as well as supplementary non-financial and financial metrics, as well as crucial information pertaining to future projections. Each question within this

questionnaire employs a binary response format, entailing only two possible values. In our assessment, a value of 1 is assigned if the sought-after information is present within the annual report, while a value of 0 denotes the absence of the specified information. After collecting responses for all questions, we calculate the mean of the cumulative scores, transforming it into a continuous variable. A higher score signifies greater disclosure, signifying a lower degree of opaqueness and a more transparent informational outlook.

The selection of questionnaire items was guided by commonalities, noting that if a company reports one feature within a specific group, it is likely to disclose all items in that particular category. This targeted selection aids in distinguishing between companies with varying disclosure scores, facilitating a more discerning analysis. Given the stability of disclosure policies as discussed by Francis et al., (2008) and Botosan (1997), our questionnaire was designed for a single year. This approach acknowledges that a company's disclosure policy tends to remain consistent, resulting in unchanging scores over time. Thus, our study constructed the disclosure score for the year 2022 based on information extracted from annual reports and 10K filings.

Earnings Management

Drawing from the existing body of research on earnings management (Subramanyam, 1996; Jones, 1991), this study employed discretionary accruals as a yardstick to gauge the degree of earnings manipulation. Aligning with the methodology utilized by Jaggi and Leung (2007), In our study, we utilized cross-sectional variations in the modified Jones model (Dechow et al., 1995; Jones, 1991) to create a proxy for discretionary accruals, following the approach outlined by Dechow et al., (1995), in a comprehensive assessment, underscored the modified Jones model's superior effectiveness in estimating discretionary accruals in comparison to alternative models. Additionally, Bartov et al. (2000) suggested that the cross-sectional model is superior to its time-series counterpart in detecting accruals management dynamics. In our study, we measured earnings management using discretionary accruals, calculated via the cross-sectional manifestation of the modified Jones model, as detailed by (Dechow et al., 1995)

$$TACC/A_{i,t-1} = \alpha 1/A_{i,t-1} + \alpha \Delta REV - \Delta REC/A_{i,t-1} + \alpha\, PPE/A_{i,t-1} + \varepsilon$$

TACC : Our research use this term whose definition is variance among net income prior to (NI) extraordinary items plus the cash flow from Operations (OCF) year "t" pertaining to company "i".

$\Delta REV_{i,t}$: for company i in year t changes in revenues

$A_{i,t-1}$: for company i in year t total assets

$\Delta REC_{i,t}$: for the company i in year t receivables change

$PPE_{i,t}$: for the company i in year t Fixed Assets

Discretionary accruals are observed as the residuals originating from the previously mentioned regression analysis performed within each industry-year portfolio. This model expects a typical correlation between changes in revenue and working capital accruals. Consistent with the methodology proposed by Warfield et al., (1995), we employed the absolute value of discretionary working capital (DA) to detect instances of both income enhancement and income reduction as components of earnings management.

In relation to control variables, firm size was gauged through the logarithm of total

assets. We assessed firm profitability as a control variable, employing two metrics: the Net Income to Assets ratio and the utilization of the price-to-book ratio. Additionally, our third control variable measured Leverage, quantified through the debt-to-equity ratio. We have used the control variables because these control variables are well defined in the stock price synchronicity literature. More profitable and larger firms generally attract the attention by analysts and greater investor attention, which improves the firm's information environment and can reduce the stock price synchronicity. The growth firms, measured by price to book ratio, often reflect more firm-specific information in their stock prices, while firms with high leverage are usually more sensitive to systematic risk which can lead to higher synchronicity. Inclusion of these control variables helps in isolating the effect of main independent variables on the dependent variable.

Data Diagnostics

In our research analysis, the data were processed through EViews, and a series of rigorous procedures and tests were conducted. Initially, we examined the stationarity of the data, excluding the dummy variables, utilizing unit root tests. The results of these tests indicated that all the series under consideration exhibited stationarity. To mitigate the potential impact of Heteroscedasticity, we employed the White cross-sectional test. Additionally, we applied Weighted Least Squares (WLS) with cross-sectional weights to address this issue effectively. Addressing Autocorrelation concerns, we identified the significance of a single autoregressive lag, which was then incorporated into our model to account for this effect. Furthermore, we meticulously investigated the correlation matrix to assess the presence of Multicollinearity. We observed that there were no instances of high correlation among the variables, affirming the soundness of our analytical approach.

DISCUSSION

Table 1 presents a comprehensive overview of the statistical summaries of the study variables. Notably, the variable "SYNC" denotes the Systematic Risk Proxy (SPS), derived through the previously detailed market model. The ultimate value of SYNC is attained by subjecting the R-squared (R2) value to a logistic transformation method. The variable "VD" represents the Voluntary Disclosure Score, as determined through the questionnaire method proposed by (Francis et al., 2008). This scoring mechanism yields binary values of 1 and 0. The cumulative score, indicative of the extent of voluntary disclosure, is calculated by dividing the total score by the number of questions. A higher score signifies heightened voluntary disclosure, implying greater transparency. Conversely, lower scores suggest limited voluntary disclosure, indicative of reduced transparency. The variable "SIZE" corresponds to the magnitude of a company, gauged by its total assets. Larger total assets denote a larger company size, while smaller assets imply a smaller size. The "Profitability" variable is established by dividing the net income by the total sales of the company. This derived figure is employed as a proxy for assessing profitability levels. Furthermore, the "leverage" variable gauges the debt levels of individual firms, offering insights into their financial leverage. Lastly, the "DA" variable pertains to Discretionary Accruals. Computed utilizing a modified version of the (Jones, 1995), it serves as a proxy for evaluating earnings management practices.

Data Descriptive statistics

Table 1: Descriptive Statistics

	SYNC	VD	SIZE	PROF	LEV	DA
Maximum	1.33	1.00	6.84	0.78	384.30	0.31
Minimum	-13.02	0.14	3.98	-0.98	-162.10	-0.21
Median	-0.88	0.57	4.71	0.11	0.80	0.00
Mean	-1.28	0.61	4.77	0.12	2.10	0.00
Skewness	-2.70	0.12	1.41	-1.87	11.24	2.16
Std. Dev.	1.62	0.16	0.42	0.15	20.20	0.04
Kurtosis	13.74	3.03	7.43	16.96	240.66	22.27
Observations	600	600	600	600	600	600

VD = Voluntary disclosure score calculated using 25-point questionnaire; Sync = Synchronicity; Prof = Profitability calculated using net profit margin; Size = Size of the companies calculated using Log of total Assets; DA = estimated Discretionary accruals using Modified Jones model 1995; Lev = Leverage calculated using Debt to equity ratio.

Across a dataset encompassing six years of observations for a total of 100 companies, each variable is represented by a total of 600 data points. The statistical description of these variables reveals insightful patterns. For the "Synchronicity" variable, the mean (median) value is -0.88, with a minimum of -13.02 and a maximum of 1.33. This wide range of values indicates that the majority of companies exhibit lower synchronicity scores. Such scores imply a similarity in performance among these companies within the stock market context. Moving to "Voluntary Disclosures," the mean (median) value is 0.57. The range is starting minimum of 0.14 to a maximum of 1, representing a perfect score. This distribution underscores the prevalence of high levels of voluntary disclosures, reflecting an environment characterized by robust regulatory practices. Notably, there is minimal variance among the companies, alluding to a consistent pattern of voluntary disclosure across the dataset. In the case of "Discretionary Accruals," the mean (median) value is 0.00. The spectrum ranges from a minimum of -0.21 to a maximum of 0.31, signifying a predominance of companies exhibiting a moderate degree of earnings management tendencies. Regarding "Size," the mean (median) value is 4.71. The range extends from a minimum of 3.98 to a maximum of 6.84. The distribution indicates a relatively consistent size among the majority of companies in the dataset, with limited fluctuations. For the "Lev" variable, denoting leverage, the mean (median) value is 0.80. The range encompasses a broad spectrum, with a minimum of -162 and a maximum of 3.84. This wide variation underscores significant disparities in the debt structures across different companies and years. Lastly, examining "Profitability," the mean (median) value is 0.11. The range spans from a minimum of -0.98 to a maximum of 0.78. This substantial variance reflects notable differences in the profitability levels among various companies. In summation, the statistical portrayals of these variables provide valuable insights into the characteristics and dynamics of the companies under investigation.

Variables Correlation Analysis.

Table 2: Correlation Matrix

	SYNC	VD	DA	LEV	PROF	SIZE
SYNC	1	0.023202	0.130109	0.014789	7.11E-02	-0.12114
VD		1	-0.0377	0.051108	-0.11742	0.199122
DA			1	-0.01419	0.104003	0.004076
LEV				1	0.002823	-0.05131
PROF					1	-0.04136
SIZE						1

VD = Voluntary disclosure score calculated using 25-point questionnaire; Sync = Synchronicity; Prof = Profitability calculated using net profit margin; Size = Size of the companies calculated using Log of total Assets; DA = Discretionary accruals, which are estimated using Modified Jones model 1995; Lev = Leverage calculated using Debt to equity ratio.

Upon examining the presented table, a noteworthy observation emerges: a lack of discernible positive or negative correlations among our sample variables. This absence of significant correlations is indeed promising and augments the reliability of our subsequent regression outcomes. Notably, the variables "Sync" and "VD" exhibit an exceedingly weak correlation of 0.023202. Additionally, a correlation of 0.130109 exists between "Sync" and "DA." This correlation, though weakly positive, suggests that heightened earnings management activities could potentially lead to an increase in synchronicity. Furthermore, the correlation between "Lev" and "Sync" is notably feeble, measuring at 0.014789. This implies that the influence of capital structure on synchronicity is marginal at best. Interestingly, a negative correlation manifests between "Profitability" and "Synchronicity." This observation indicates that companies with elevated profitability levels tend to display lower synchronicity in their performance within the stock market. This configuration of correlations, or lack thereof, underscores the robustness of our data and sets a promising foundation for the credibility of our subsequent regression analyses.

Regression Results

Model 1

$$SYNC_{i,t} = \beta 0_{i,t} + \beta 5SHC + \beta 3PROFIT_{i,t} + \beta 4LEV_{i,t} + \beta 2SIZE_{i,t} + \beta 1VD_{i,t} + \varepsilon I$$

Table 3: Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.2026	1.4397	-0.1407	0.8882
AR(1)	0.4747	0.0414	11.4785	0.0000
SIZE	-0.3313	0.2998	-1.1050	0.2697
SHC	0.1630	0.2587	0.6298	0.5291
PROF	0.2059	0.4804	0.4286	0.6684
LEV	0.0024	0.0026	0.9246	0.3556
VD	0.5409	0.8018	0.6745	0.5003

Sync = Synchronicity; VD = Voluntary disclosure score; Size = Size of the companies; Prof = Profitability; Lev = Leverage calculated; SHC = Sharīʿah Compliance

Adjusted R-squared	0.2144	S.D. dependent var	1.6876
R-squared	0.2239	Mean dependent var	-1.3382
Sum squared resid	1102.9448	Schwarz criterion	3.7160
S.E. of regression	1.4957	Akaik info criterion	3.6570
F-statistic	23.7039	Durbin-Watson stat	2.3797
Log likelihood	-907.2520	Hannan-Quinn criter.	3.6802
Prob(F-statistic)	0.000		

Diagnostics

The diagnostic assessment confirms the absence of Heteroscedasticity and autocorrelation in our data. We addressed autocorrelation using a first-order autoregressive term. Notably, the Durbin-Watson value of 2.3 falls within the optimal range, affirming our results.

Endogeneity in Our Model

To assess endogeneity, we will examine our model's robustness by incorporating lagged independent variables. Insignificant J-Stat results would indicate potential endogeneity, while significant results would provide confidence in the absence of endogeneity concerns.

Table 4: Regression Results for Endogeneity Check

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.836	2.229	-0.375	0.707
DA	7.536	3.908	1.928	0.054
VD	0.538	0.847	0.634	0.525
PROF	1.919	1.294	1.482	0.138
LEV	0.053	0.056	0.943	0.345
SIZE	-0.231	0.504	-0.458	0.647

R-squared	-0.421	Mean dependent var	-1.279
Adjusted R-squared	-0.433	S.D. dependent var	1.620
S.E. of regression	1.939	Sum squared resid	2231.710
Durbin-Watson stat	1.519	J-statistic	0
Instrument rank	6		

Table 4.4 displays GMM technique results, while Table 4.5 presents key associated values. Significance of the J Statistic assures us that endogeneity is not an issue in our model, instilling confidence in its validity.

Model 2

$$SYNC_{i,t} = \beta 0_{i,t} + \beta 1 DA_{i,t} + \beta 3 PROFIT_{i,t} + \beta 2 SIZE_{i,t} + \beta 4 LEV_{i,t} + \beta 5 SHC + \varepsilon I$$

Table 5: Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.1821	0.7292	-1.6210	0.1057
DA	1.7424	0.6907	2.5229	0.0120
LEV	0.0033	0.0026	1.2656	0.2062
SIZE	0.0222	0.1534	0.1444	0.8852
PROF	0.0964	0.2406	0.4007	0.6888
SHC	0.1961	0.1185	1.6552	0.0985
AR(1)	0.3266	0.0423	7.7244	0.0000

Sync = Synchronicity; DA = Discretionary Accruals; Size = Size of the companies; Prof = Profitability; Lev = Leverage calculated; SHC = Sharīʿah Compliance

R-squared	0.1641	Mean dependent var	-1.6207
Adjusted R-squared	0.1539	S.D. dependent var	1.5322
S.E. of regression	1.4349	Sum squared resid	1015.1144
F-statistic	16.1324	Durbin-Watson stat	2.2541
Prob (F-statistic)	0.0000		

Discussion of Results

Table 4.3 presents the outcomes of Model 1. The results indicate that Voluntary disclosures lack a significant influence on Synchronicity. This could be attributed to the stringent regulatory framework in the US market, where most firms adhere to extensive disclosure requirements. Additionally, the prevailing information environment fosters widespread disclosure due to educated investors' preferences for transparency (Bhatia & Makkar, 2020). Unexpectedly, these findings counter Hypothesis H1, which posited a negative link between Voluntary Disclosures and SPS. This discrepancy suggests a level playing field within the US's developed market, where firms compete similarly due to uniform information demands (Asaba & Marvin, 2006). Moving to Model 2, the empirical results displayed in Table 4.4 spotlight our second variable: discretionary accruals, a proxy for earnings management. Remarkably, this variable emerges as significant, bearing a positive coefficient in alignment with Agency Theory. This outcome suggests that firms employing higher earnings management exhibit greater SPS. Remarkably, Sharīʿah compliance appears insufficient to curtail earnings management due to the observed market-wide conformity in behavior, echoing the rationale discussed earlier (Abdullah Alsaadi, 2016). Surprisingly, these findings contradict Hypothesis H3, which proposed that Sharīʿah-compliant firms would showcase reduced earnings manipulation compared to non-compliant peers. This might be because the firms listed in US already face stringent transparency and disclosure requirements by the exchanges and SEC. Since the bottom line disclosures are already high so the Sharīʿah compliance does not create a marginal impact significantly. This study's insights illuminate the intricate interplay between regulatory environments, market dynamics, and firm behavior, showcasing how context and shared market norms can outweigh expected effects. The findings underscore the nuanced nature of corporate practices within the broader landscape of compliance and management strategies.

Compliance with Sharīʿah

The examination of Sharīʿah compliance, assessed via the SHC dummy variable in both models, reveals its insignificance. This implies a minimal impact of Sharīʿah compliance on corporate behavior. This outcome can be attributed to various factors. Notably, the sample comprises companies not inherently committed to voluntary Sharīʿah compliance, as observed by (Alsaadi, 2017). Their study demonstrates that firms labelled as Sharīʿah compliant often engage in accruals to boost income, using compliance as an investment appeal rather than an enhancer of financial reporting. This aligns with the notion that Sharīʿah index inclusion doesn't necessarily denote a religious motive for firms.

CONCLUSION

Our study aimed to explore the interplay between Sharīʿah Compliance and a firm's SPS. Sharīʿah compliance underscores transparency through increased voluntary information disclosure and reduced earnings management. Data from S&P Sharīʿah-compliant top cap indexes was used for Sharīʿah Screening. In the context of the US top cap market, our findings indicate that Sharīʿah compliance doesn't significantly impact SPS among firms, suggesting similarities in their operational behavior. Similarly, earnings

management activities show no significant distinction between the two types of firms. Notably, the earnings management variable demonstrates significance with a positive coefficient, indicating a positive relationship between SPS and earnings management a situation where increased earnings management correlates with higher SPS. The insignificance of Sharīʿah compliance's impact can be attributed to several factors. (Abdullah Alsaadi, 2016) posit that being listed in the Sharīʿah index doesn't necessarily enhance financial reporting quality, while firms engaged in CSR activities exhibit reduced earnings manipulation. This aligns with our results, suggesting consistent opportunistic behavior regardless of compliance status.

Additionally, the quality of financial reporting, gauged through Voluntary disclosures, doesn't show improvement for Sharīʿah-compliant firms. A plausible explanation is that mere listing in the Sharīʿah index lacks a binding commitment to ethical behavior, as explicit alignment with Sharīʿah guiding principles might be absent. Our findings lend support to the notion that the current Sharīʿah screening process falls short of adhering to fundamental Islamic principles. The process leans more towards negative screening, neglecting social welfare and transparency aspects. It's worth noting that different measurement techniques for Sharīʿah compliance and Voluntary disclosures could potentially yield different results, warranting further exploration.

In conclusion, our study highlights the intricate dynamics between Sharīʿah Compliance, firm behavior, and reporting quality. The nuanced relationship underscores the need for more comprehensive and aligned screening processes in assessing ethical and transparency practices within the context of Sharīʿah compliance.

Practical Implications

The results suggest that the regulatory standards are already high in the developed markets such as U.S, so in developed markets Sharīʿah-compliance may not give additional benefits in improving the firm's information environment. When making investment selections in markets that adhere to Sharīʿah, investors may benefit from taking the higher level of voluntary disclosures and earnings management practices of enterprises into account. To reduce stock price synchronization and attract more investors, companies operating in Sharīʿah-compliant markets may need to concentrate on enhancing their voluntary disclosure practices and reducing earnings management. In order to increase transparency and improve stock price synchronization, regulators and standard-setting bodies may consider enacting rules or legislation to encourage higher levels of voluntary disclosures and prohibit earnings management practices.

Policy Implication

To ensure better disclosure quality, transparent financial systems, and improved capital market governance, governments and regulatory bodies may need to strengthen corporate governance frameworks and rules. International Financial Reporting Standards (IFRS) adoption should be encouraged by policy measures, which could improve the comparability and transparency of financial data in markets that adhere to Sharīʿah. Supporting diversity on company boards, particularly increased female representation, may improve governance procedures and have an impact on stock price synchrony.

Future Directions

This concept holds promise for future research, given the nascent state of Sharīʿah compliance in the US and North America. With Sharīʿah compliance gaining traction as an ethical business alternative, firms that voluntarily adopt it may exhibit more distinct operational differences in the future. Furthermore, enhancing the Sharīʿah screening process to incorporate firm management's deliberate commitment to Sharīʿah principles could substantially impact financial performance and enhance investor confidence.

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