

ORIGINAL CONTRIBUTION

Voluntary Disclosure, Enterprise Risk Management and Stock Price Synchronicity: Evidence from Shari'ah Compliant and Non-Shari'ah Compliant Companies

Zeshan Ghafoor ^{1*}, Arshad Hassan ²

¹ Ph.D Scholar, Capital University of Science and Technology, Islamabad, Pakistan

² Professor, Faculty of Management and Social Sciences,
Capital University of Science and Technology, Islamabad, Pakistan.

Keywords

Voluntary Disclosure
Enterprise Risk Management
Stock Price Synchronicity
Shari'ah Compliance

Received: 1 December 2017

Accepted: 24 April 2018

Abstract. The study observes that low R^2 values from market model are primarily due to the reflection of firm-specific information in stock prices and not due to noise. The study explores that the extent to which stock prices become more informative depends upon the availability of firm-specific information in the market. The methodology of stock price synchronicity is applied by using a sample of 30 Shari'ah and 30 non-Shari'ah compliant companies which are taken from KMI 30 and PSX 100 indexes. The study explores the impact of Shari'ah compliance on stock price synchronicity or informativeness based upon the rationale that Islam puts emphasis on disclosure and social accountability which should reduce the firm's information asymmetry and improve the stock price informativeness. The study reports significant and positive relationship of Shari'ah compliance and voluntary disclosure on stock price synchronicity which is not according to the hypothesis. The possible reason may be the size effect which may be moving the firms in line with the market. Moreover, the Enterprise Risk Management (ERM) practices have significant and negative impact on stock price synchronicity. It confirms that ERM helps in improving the firm's information environment and stock price informativeness.

KAUJIE Classification: L24, L4, L31, V12

JEL Classification: C1, G21, G24

© 2018 JIBM. All rights reserved.

INTRODUCTION

The asset pricing models in finance are developed with high sophistication to achieve better explanatory power. However, the emerging evidence suggests that the explanatory power of these models is very low. As the asset pricing models deal with the systematic information so it is argued that the unexplained component relates either to firm specific information or

*Corresponding author: Zeshan Ghafoor

†Email: zeshan.ghafoor@riphah.edu.pk



to unrelated frenzy noise (Roll, 1988). To explore the firm specific information component, different aspects related to firm fundamentals and information asymmetric environment are tested (Jin & Myers, 2006; Morck, Yeung, & Yu, 2000). This is the first paper in the series which considers the impact of Sharī'ah compliance on stock price synchronicity. The motivation to study the Sharī'ah compliance is that Islam puts more emphasis on full disclosure and social accountability of the firms (Haniffa, Hudaib, & Mirza, 2008; Ousama & Fatima, 2010). Full disclosure directly relates to the information asymmetric environment, and social accountability relates to ethical reporting. So the firms seeking the Sharī'ah compliance should be more transparent and reliable and disclose financial information which is free from any misstatements and manipulations (Abdul-Rahman, 2012; Ahmad & Ibrahim, 2002, Sulaiman, 2001). This leads us to check the impact of Sharī'ah compliance on stock price synchronicity with an expectation of negative relationship.

Agency conflict and information asymmetry hinder the stock valuation process due to which stocks deviate from their fundamentals (Francis, Nanda, & Olsson, 2008). In order to reduce information asymmetry and agency conflict, companies intentionally send signals to market, such as, in addition to mandatory information, companies voluntarily disclose information like management's opinion and forecasts regarding companies' future outlook, supplementary schedule, conference calls and so on (Healy & Palepu, 2001). In this regard, Hooghiemstra, Hermes, and Emanuels (2015), Jin and Myers (2006) studied the impact of firm's opaqueness on stock price synchronicity, and reported that the stocks of opaque or asymmetric firms represented more market wide variation, meaning that reflecting higher deviation from their fundamentals. This study measures the firm opaqueness from 25 item scale of voluntary disclosure and explores its impact on stock price synchronicity.

After the financial collapse of Enron, WorldCom, Sunbeam and others, the area of internal control and enterprise risk management has attained major attention. After Sarbanes-Oxley act, a noticeable trend of emphasis on risk management practices by firms has also been witnessed (Sabato, 2009). Firms have started putting efforts to establish the systems and structures to inculcate risk management practices like the establishment of dedicated risk management committee, dedicated risk officer, audit forms used by big four firms and so on. The motivation to explore the enterprise risk management practices is because it deals the overall risk of the firm including firm's short term and long term value (D'Arcy & Brogan, 2001). The actions related to risk management are considered an effort to reduce the agency conflict and asymmetric environment. So the study also explores the impact of enterprise risk management practices on firms' behavior in stock market.

LITERATURE REVIEW

Stock Price Synchronicity

Asset pricing models consider the systematic factors to determine the security's pricing. To get the high explanatory power, high R^2 , of these models, the stock's variation has to be in alliance with stock market index, to present synchronous movement with the stock market index. And if the models yield low explanatory power, low R^2 , then the error term increases. One possible explanation of increase in error term is the possibility of idiosyncratic infor-

mation which is affecting the volatility of firms' returns, while the other one is the presence of noise. Roll (1988) observed low explanatory power of models and explained the possibility of presence of private information. The incorporation of private information in stocks generally brings higher volatility in the prices, due to which low explanatory power is observed.

Morck et al. (2000) conducted a study in the domain that uses a methodology named "Stock Price Synchronicity" in order to capture the relative amount of unique information being incorporated in the stock prices. They interpreted higher values of R^2 as the returns reflected more systematic or market wide variations, as CAPM and APT use the systematic factors only. The firms with low R^2 values are considered as the firms capturing more firm specific information. Based upon the country level R^2 , Morck et al. (2000) find that firms reporting higher synchronicity are generally from the countries with poor investors' property rights protection, low per capita gross domestic product, less developed equity markets and weaker legal regimes. Li, Morck, Yang, and Yeung (2004) investigated the cross country differences in the R^2 values in emerging economies and reported that the R^2 values in different markets were declining gradually. The declining trend is particularly observed in the economies with less corruption, better legal systems and capital market openness. Jin and Myers (2006) also supported the results of Morck et al. (2000), regarding decline in R^2 . The study reported that the higher R^2 values related to the companies more opaque and less transparent and which created higher information asymmetry. Further, evidence supports that the opaque firms with high information asymmetry have experienced more market crashes in comparison to more transparent firms.

Opaqueness and Voluntary Disclosure

Due to agency conflict the managers have two choices, first is to hide the information which is not favorable for the firm and its shareholders; Secondly, to provide more disclosures when the information seems more suitable and favorable to the shareholders. This self-serving behavior of management creates the environment of information asymmetry which increases the agency cost and affects the decision making of shareholders (Jensen & Meckling, 1976). According to information hypothesis, the majority of firm specific information is mentioned in the financial reports, which are essential for investors for investment decisions (Fama & Laffer, 1971). In addition to the mandatory disclosures, firms also disclose the information on voluntary basis, such as the management's opinion and forecasts, supplementary schedule, press releases, conference calls, internet sites and so on (Healy & Palepu, 2001). The volume of disclosures and the number of institutions which support in the provision of reliable disclosures play significant role in the mitigation of agency problems.

It is argued that the agency issue and information asymmetry may create hurdles in the proper functioning of capital markets (Francis et al., 2008). The voluntary disclosures in this regard can play significant role. This analysis is based on Jin and Myers's work (2006) on opaqueness. They have explained similarity between Opaqueness of firm-specific information and poor protection of investors' property rights. If a firm is more opaque, it means that more of the firm specific information is not disseminated by the managers; and this

results into higher R^2 values. Jin and Myers (2006) have used the global competitiveness report as a measure of transparency. It is a survey-based and subjective in nature. However, in this study the level of financial disclosures is actually calculated by analyzing the financial reports (Hooghiemstra et al., 2015). The 25 item questionnaire, given in appendix, of Francis et al. (2008) is used to calculate the voluntary information level. The scale is divided into four different heads namely summary of historical results, other financial measures, non-financial measures and projected information. This questionnaire is not sent to managers or analyst, rather secondary source has been used as all the questions are objective, and their answers are available in annual reports of firms. It is hypothesized that higher disclosure score decreases the information asymmetry which in-turn reduces the stock price synchronicity.

H1: Voluntary Disclosure is negatively associated with stock price synchronicity.

Sharī'ah Compliant Companies and Stock Price Synchronicity

Religion is considered as one of the most important aspects for people. Especially, Islam provides complete code of life dealing with religious belief, sociology, economics and politics (Ousama & Fatima, 2010). In Islam the ownership of all resources in the universe belongs to Almighty Allah, while humans are merely the trustees (Ousama & Fatima, 2010). Being a trustee a person is responsible for the actions he takes throughout his life especially which pertain to the rights of other people. Accordingly, at the Judgment Day, every individual will also be asked regarding his responsibility to the community and environment.

Noreen (1988) discusses that religion acts as an important tool to enhance the ethical and moral conduct of people in economics and business related activities. Religion motivates the individuals to follow those types of behavioral norms which are important for their ethical behavior enforcement. In support to this argument, Kennedy and Lawton (1998) find the negative relationship between religiousness and willingness to do unethical acts. It has become a well-established fact that the religion plays an important role to transform the judgments and economic behaviors of individuals as well as organizations collectively (Sulaiman, 2001). So, religious commitment motivates managers to engage themselves in the ethical decision making.

In Muslim majority countries, from a couple of decades, a growing effort is noticed to inculcate the Sharī'ah principles in economics and finance. Several studies have been found focusing the role of religion on the economic and financial outcomes at both governmental and organizational levels (Ahmad & Ibrahim, 2002; Sulaiman, 2001). At government level, efforts are made to develop supportive policies to flourish Islamic banking and finance and Sharī'ah compliant capital markets. While at company level in many cases, efforts are made to seek compliance with Sharī'ah codes, particularly with the Sharī'ah compliance criteria dealing with accounting and finance (Ahmad & Ibrahim, 2002). Under capitalistic school of thought the accounting and finance deals with the tactics and procedures through which the value of decision maker can be maximized. In accounting and finance, the decision is considered under the domain of economic rationality which merely focuses on the maximization of shareholders' wealth (Haniffa et al., 2008). So the best accounting practices are

those which best fulfill the underlying objective of economic rationality. On the extreme notion, the capitalistic school of thought does not consider anything moral if the economic profits are not realized.

On the other hand Sharī'ah explains the accounting as the function of two most important aspects, *al-'adl* (distributive or socio-economic justice) and *al-falāḥ* (success in life here and life hereafter), through the systematic procedures, controls, measurements, and reporting under the light of Sharī'ah guidelines (Haniffa et al., 2008). In Islam it is deeply emphasized that the resources should be allocated in a manner that these should be equitably distributed to all economic classes so that the gap between rich and poor is as low as possible. So it can be articulated that accounting is not merely a technical activity rather it is a tool through which distributive justice and equity is achieved in the societies. This is a unique contractual relationship with stops firms by engaging in any activity which harms society, and brings high ethical and moral grounds in business related activities (Haniffa et al., 2008).

In the field of accounting and finance, Islam puts more emphasis on the disclosure side of financial reporting rather on measurement techniques, as practically there might be a little difference in measurement aspects of conventional and Sharī'ah compliant reporting (Ousama & Fatima, 2010). According to social accountability and full disclosure concept, a firm seeking Sharī'ah compliance is accountable to disclose the true and complete business information. The social accountability emphasizes on the company's accountability to the society, as the society has a right to get all material economic information related to company's operations and activities which has an impact on society (Sulaiman, 2001). It is because the complete, relevant and reliable financial disclosure assists individuals to take decisions keeping in view the religious and economic aspects.

Abdul-Rahman (2012) studies the relationship between Islamic ethical values and financial reporting quality by considering whether the religious inclination affects the firms' behavior towards accounting conservatism. The study finds that in comparison to the conventional firms the Sharī'ah compliant firms are more conservative in reporting the accounting income figures. Researcher also finds that Islamic ethical values decrease the managerial opportunism and more aggressive financial reporting behavior which ultimately lead to higher earnings quality. The Sharī'ah compliant companies are supposed to follow the ethical reporting practices due to social accountability and full disclosure concepts. This Sharī'ah compliant filter leads the Sharī'ah compliant companies to reduce the information asymmetry environment which in turn leads to low stock price synchronicity. So we hypothesize that low stock price synchronicity should be observed for Sharī'ah compliant companies.

H2: The Sharī'ah compliant companies have significant negative impact on stock price synchronicity.

Enterprise Risk Management

ERM deals with the management of overall risk of a firm. It is also named as the business risk management, integrated risk management, strategic risk management, holistic risk management, and corporate risk management (D'Arcy & Brogan, 2001). The Casualty Ac-

tuarial Society (CAS) defines the ERM as:

“The process by which organizations in all industries assess, control, exploit, finance and monitor risks from all sources for the purpose of increasing the organization’s short and long term value to its stakeholders.”

The recent major financial collapses such as of Enron, Sunbeam, WorldCom and others demand in depth review of accounting and risk management practices in the organizations. That’s why, currently at organizations mainly the risk management is put at top of the agenda to create the relevant structures (Beasley, Pagach & Warr, 2008). Sarbanes-Oxley act is considered as one of the supporting actions in this regard. Different supportive actions in organizations can also be taken like the establishment of dedicated risk committee, dedicated risk officer and appointment of big four audit firms (Sabato, 2009). It is stated that the actions related to the presence of dedicated risk committee, dedicated risk officer and audit from big four audit firms is considered as significant effort by the management in order to provide the credible and transparent financial information (Beasley et al., 2008). It is said that the presence of dedicated Risk Committee, risk officer and big four auditors provide better control which in turn leads to lower information asymmetry. Finally, low information asymmetry results in the lower stock price synchronicity.

H3: The presence of dedicated risk committee is negatively related with stock price synchronicity.

H4: The presence of big four auditors is negatively associated with stock price synchronicity.

Control Variables

Study also evaluates the control variables including firm size, profitability and leverage. Firm size is used to study the size effect. Skaife, Gassen, and LaFond (2006) argue that the larger firms may disseminate more rich information, so they might report low synchronicity, depicting the negative relationship. However, on the other hand, the larger firms tend to have more diversified portfolio which brings them more in line with the direction of market, which consequently results into the positive relationship with stock price synchronicity (Piotroski & Roulstone, 2004; Roll, 1988). Firm’s profitability is added to capture the impact of firm performance. Generally the more profitable firms seek more attention by investors and analysts, consequently showing high R². Finally, the leverage has also been added as control variable because according to pecking order theory, in case of information asymmetry, firms prefer the debt financing instead of equity financing which gives the signal of board’s confidence that the investments are profitable (Frank & Goyal, 2003). So it can be seen that the firms relying more on leverage, than equity, seem to have asymmetric information environment which consequently results into reporting of higher stock price synchronicity. Accordingly, the hypotheses are:

H5: Size has significant positive impact on stock price synchronicity.

H6: Profitability has significant positive impact on stock price synchronicity.

H7: Leverage has significant positive impact on stock price synchronicity.

METHODOLOGY

The sample of the study comprises of 60 non-financial companies selected from Pakistan stock exchange with data from the period July, 2008 to June, 2015. Thirties companies are Shari'ah compliant and remaining 30 are non-Shari'ah compliant companies. The Shari'ah compliant companies are selected from a list provided by Al-Meezan Investment as on December, 2016. Detailed criteria is provided dealing Shari'ah screening filters, such as *halal* nature of business and thresholds of different ratios like interest bearing debt to total assets, non-compliant investment to total assets, non-compliant income to total revenue, illiquid assets to total assets, net liquid assets per share and etc. The preference is given to those companies which are included in Karachi Meezan Index 30 or in Pakistan Stock Exchange 100 index, respectively, to best represent the overall market behavior. The stock price synchronicity has been measured by using Morck et al. (2000), Jin and Myers (2006) and Eun, Wang, and Xiao (2015)' proxy to measure stock price synchronicity from the market model. The values of R^2 are taken from the following market model:

$$RETSTK_t = \beta_{0t} + \beta_1 RETMKT_t + \varepsilon_t$$

Where $RETSTK_t$ is the return for a stock i for a week t , while $RETMKT_t$ is the return of a market for a week t . The equally weighted averages of the returns are used in the study. The model assesses whether R^2 is a measure which is related to the informativeness of firms' stock prices. According to the model, lower R^2 captures those stocks which reflect more idiosyncratic information impounded in the stock prices.

Because the R^2 values range from 0 to 1 so the logistic transformation can be applied to it to convert it into the continuous variable:

$$SYNCHRONICITY = \text{Transformed } R^2 = \text{Ln}(R^2)/(1 - R^2)$$

This study estimated the following equations (Eq. 1 & Eq. 2) that explain stock price synchronicity for firm i year t :

$$SYN_{i,t} = \beta_{0i,t} + \beta_1 AUDIT_{i,t} + \beta_2 DRC_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 PROFIT_{i,t} + \beta_5 LEV_{i,t} + \beta_5 SHCD + \varepsilon_{i,t} \quad (1)$$

$$SYN_i = \beta_{0i} + \beta_1 VD_i + \beta_2 SIZE_i + \beta_3 PROFIT_i + \beta_4 LEV_i + \beta_5 SHCD + \varepsilon_i \quad (2)$$

Where, SYN is a dependent variable which expresses stock price synchronicity of company i for a week t , $AUDIT$ refers to big four audit firms-one for presence and zero for absence; DRC , measures dedicated risk committee which is also one for presence and zero for absence, $SIZE$, measures total assets, $PROFIT$ denotes the profitability, LEV measures financial leverage, $SHCD$ takes the value of 1 if company is Shari'ah compliant, otherwise 0; and VD from (Eq. 2) measures voluntary disclosure.

To measure the opaqueness the twenty five items questionnaire of Francis et al. (2008) has been used. There are four components of the scale: the historical results, other financial measures, non-financial measures, and the projected information. All questions are binary in nature - the number 1 is given to a question if that information is presented in the annual report, and 0 otherwise. After getting the values of all questions, it is converted into the continuous variable by taking the average. Higher disclosure score means low opaqueness

and low information asymmetry. The study measures ERM from the presence of Dedicated Risk Committee (DRC), Dedicated Risk Officer (DRO), and firm audit from any of big four audit firms. All three variables are captured through dummy variable, as the presence of each aspect is assigned value 1, and 0 for absence.

The study investigates the impact of voluntary disclosure only for the year 2015-16, as the voluntary disclosure is constructed over 8 years of time period, the score is found almost same with no change over time. This seems that companies follow the constant disclosure policy.

For control variables, firm size is measured as log of total assets. Firm profitability is measured by two ratios, one is measured by Net Income/Assets, and the other one is price-to-book ratio. Leverage is measured by debt/equity ratio. The stationarity of the data, except dummy variables, is tested by unit root test and all series are found stationary. In model 1, to deal with Heteroscedasticity, White cross section and Weighted least square is applied by taking the cross section weights. For Autocorrelation, one autoregressive lag was found significant so it is added in the model, and correlation matrix is analyzed to see the Multicollinearity in which no high correlation is seen. In model 2, White test is applied to deal the Heteroscedasticity issue, and correlation matrix is analyzed to see the Multicollinearity issue. However, the Autocorrelation is not the matter of concern in cross-section study only.

RESULTS AND DISCUSSION

TABLE 1
Descriptive statistics

	VD	LEV	PBR	ROA	SIZE	SYN
Mean	0.54	0.505	2.552	7.076	4.169	-2.449
Median	0.60	0.17	1.2	5.3	4.151	-1.916
Maximum	1.00	4.93	36	41.91	5.743	1.795
Minimum	0.26	-5.6	-6	-42.02	2.004	-11.864
Std. Dev.	0.12	0.923	4.498	10.207	0.672	2.127
Skewness	1.81	0.816	4.150	0.118	-0.152	-1.395
Kurtosis	0.54	11.515	24.301	4.495	2.790	5.530

Table 1 demonstrates the correlation among the variables used in this study. Firm-specific variables involve; Voluntary Disclosure (VD), Leverage (LEV), Price-to-Book Ratio (PBR), Return on Assets (ROA), Size (SIZE) and Stock Price Synchronicity (SYN).

Dummy variables: Sharī'ah compliant (SHCD), DRC, DRO and Audit quality (AUDIT) are measured through dummy.

The Table 1 presents the descriptive statistics for the variables used in the study. As explained earlier, the study separately checks the impact of voluntary disclosure as it is constructed for one year, 2015-16, because the study finds no change in disclosure score in most of the firms over years. The voluntary disclosure score is around 54% which means that on average, companies report 14 out of 25 items from the index. Approximately, 42%

of the companies are conducting audit from big four audit firms. Very few companies, approximately 8%, have established the dedicated risk committee and not a single company is found to have dedicated risk officer. The study examines 30 Shari'ah compliant and 30 non-compliant companies, and that's why the dummy variable SHCD is almost 50%. The average profitability of firms is around 7% and leverage component is less as on average leverage ratio is 50.5%.

TABLE 2
Correlation matrix

	AUDIT	DRC	LEV	PBR	ROA	SHCD	SIZE	SYN
AUDIT	1.00							
DRC	-0.05	1.00						
LEV	-0.08	0.27	1.00					
PBR	-0.05	0.13	0.06	1.00				
ROA	0.26	0.09	-0.13	0.28	1.00			
SHCD	0.08	0.18	-0.09	-0.10	0.11	1.00		
SIZE	0.08	0.19	0.08	-0.07	0.08	0.38	1.00	
SYN	0.09	0.07	0.06	-0.12	0.16	0.45	0.42	1.00

TABLE 3
Effect of enterprise risk management and Shari'ah compliant on stock price synchronicity

Variable	Coefficient	Std. Error	t-Statistic	p-value
C	-6.020	0.524	-11.473	0.000
AUDIT	0.048	0.078	0.612	0.540
DRC	-0.441**	0.145	-3.024	0.002
LEV	0.100**	0.032	3.0722	0.002
ROA	0.024***	0.002	9.730	0.000
SIZE	0.691***	0.100	6.900	0.000
SHCD	1.278***	0.180	7.083	0.000
AR(1)	0.112*	0.061	1.822	0.069
R-squared	0.500424			
Adjusted R-squared	0.491099			
S.E. of regression	1.587413			
F-statistic	53.66244			
Prob(F-statistic)	0.000000			

*** $p < .001$ ** $p < .05$ * $p < 0.1$

TABLE 4
Effect of voluntary disclosure and Shari'ah compliant on stock price synchronicity

Variable	Coefficient	Std. Error	<i>t</i> -Statistic	<i>p</i> -value
C	-6.35	1.19	-5.32	0.00
VD	1.83**	0.88	2.08	0.04
SHCD	0.86*	0.50	1.72	0.09
SIZE	0.59	0.29	2.07	0.04
PBR	-0.06***	0.02	-2.54	0.01
LEV	0.45**	0.22	2.11	0.04
R^2	0.36			
Adjusted R^2	0.30			
S.E. of regression	1.68			
Sum squared resid	149.06			
Log likelihood	-111.06			
<i>F</i> -statistic	5.88			
Prob(<i>F</i> -statistic)	0.00			

*** $p < .001$ ** $p < .05$ * $p < 0.1$

The results of pooled regression are presented in Tables 3 and 4. The Models are significant and show F -statistic < 0.05 , and have good explanatory power with Adjusted $R^2 = 0.49$ (and Adjusted $R^2 = 0.30$ respectively). According to the theory, significant negative sign of dedicated risk committee suggests that the firms which are engaging in ERM practices and paying emphasis in managing risk are more transparent by reducing information asymmetry which in turn decreases the stock price synchronicity. However the big 4 audit firm variable does not show significant relationship. While in case of dedicated risk officer, the study does not find any firm which has appointed dedicated risk officer, so its test could not be run.

The study finds significant and positive relationship between Shari'ah compliant dummy variable and stock price synchronicity, which is against the hypothesis. The theory suggests that the Shari'ah compliant companies should be more transparent due to their full disclosure, social accountability and implementing the code of ethics, which should result into higher stock price informativeness and low stock price synchronicity. However the study finds the opposite relationship, this is probably due to the size effect. In the sample, Shari'ah compliant companies are larger which are also included in the index, either in PSX 100 or KMI 30. This argument is supported by positive correlation between firm size and Shari'ah compliant dummy variable. According to the literature, size has mixed results with stock price synchronicity (Piotroski & Roulstone, 2004; Roll, 1988; Skaife et al., 2006). Researchers argue that on one side there should be negative relationship between firm size and stock price synchronicity because the larger firms are assumed to disseminate more rich and transparent financial information which in-turn leads to low synchronicity. On the other hand, the bigger firms tend to have well diversified portfolios which bring those firms more in line with the market trend, resulting higher stock price synchronicity. So, due to the size factor the Shari'ah compliant companies are depicting higher stock price synchronicity.

This explanation related to size effect also seems to hold in case of voluntary disclosure variable. According to the hypothesis, voluntary disclosure should exhibit negative relationship with stock price synchronicity, because high disclosure companies are more transparent, less opaque and lower information asymmetric. However, the study represents significant but positive sign, so this variable also seems to reflect the size effect. The bigger firms have more disclosures and are generally more in line with the market which causes them to exhibit more co-movement with market and industry-wide variation and lesser reflection of firm-specific information. The study also finds the significant relationship with control variables that include profitability and leverage. For profitability, the return on assets ratio shows the significant and positive sign with stock price synchronicity. This is in alliance with the theory as the firms with more profitability seem to be more in alliance with the market movement. As discussed above, according to pecking order theory, the firms relying more on debt seem to have higher asymmetric environment and so reflect higher stock price synchronicity. The sign of leverage is also in line with the theory, depicting that the firms which have more debt financing are more opaque and higher asymmetric.

CONCLUSION

The study provides empirical evidence on the determinants of stock price synchronicity. This is the first study which explores the impact of Sharī'ah compliance in this regard. The motivation to study the Sharī'ah compliance is that the financial disclosure and social accountability concepts are integral part of business as per Sharī'ah. The disclosure concept in Islam enforces the Sharī'ah compliant companies to reduce their asymmetric environment and increase transparency. The social accountability in Islam enforces the ethical and moral conduct of firms seeking Sharī'ah compliance. So it is hypothesized that Sharī'ah compliant companies are less opaque, more ethical and less information asymmetric; so they report low stock price synchronicity. This study reports significant positive relationship of Sharī'ah compliant companies with stock price synchronicity. The possible explanation of positive sign is the size effect, as the Sharī'ah compliant companies, in the sample, are of large size. The literature explains the positive relation of firm size with stock price synchronicity in a context that the larger firms are more followed by common investors and so get more in line with the market direction. This explanation of size effect also fits with the voluntary disclosure, as the firms with higher disclosure should report low stock price synchronicity. But, in this study again positive sign for voluntary disclosure is observed; this might again be the case of size effect as the larger firms generally report higher level of disclosure. The enterprise risk management also significantly affects the stock price synchronicity. The firms which are serious in managing their risks represent lower stock price synchronicity or higher firm-specific variation.

The study only examines thirty non-financial companies from KMI and thirty from PSX 100 index. However, the same idea can be extended by the researchers over the financial sector because the Islamic financial institutions are more prone towards the quality financial reporting than their conventional counterparts. Secondly, wide data set from developed mar-

kets may also be used for testing the same idea as changes in the institutional and governance structures may change the results of the study.

REFERENCES

- Abdul-Rahman, R. (2012). *Religious ethical values and earnings quality: Some evidence from Malaysia* (Doctoral dissertation). Massey University, Albany, New Zealand.
- Ahmad, Z., & Ibrahim, H. (2002). A study of performance of the KLSE Syariah index. *Malaysian Management Journal*, 6(1&2), 25-34.
- Beasley, M., Pagach, D., & Warr, R. (2008). Information conveyed in hiring announcements of senior executives overseeing enterprise-wide risk management processes. *Journal of Accounting, Auditing & Finance*, 23(3), 311-332.
doi: <https://doi.org/10.1177/0148558x0802300303>
- D'Arcy, S. P., & Brogan, J. C. (2001). Enterprise risk management. *Journal of Risk Management of Korea*, 12(1), 207-228.
- Eun, C. S., Wang, L., & Xiao, S. C. (2015). Culture and R^2 . *Journal of Financial Economics*, 115(2), 283-303. doi: <https://doi.org/10.1016/j.jfineco.2014.09.003>
- Fama, E. F., & Laffer, A. B. (1971). Information and capital markets. *Journal of Business*, 44(3), 289-298. doi: <https://doi.org/10.1086/295379>
- Francis, J., Nanda, D., & Olsson, P. (2008). Voluntary disclosure, earnings quality, and cost of capital. *Journal of Accounting Research*, 46(1), 53-99.
doi: <https://doi.org/10.1111/j.1475-679x.2008.00267.x>
- Frank, M. Z., & Goyal, V. K. (2003). Testing the pecking order theory of capital structure. *Journal of Financial Economics*, 67(2), 217-248. doi: [https://doi.org/10.1016/s0304-405x\(02\)00252-0](https://doi.org/10.1016/s0304-405x(02)00252-0)
- Haniffa, R., Hudaib, M., & Mirza, A. M. (2008). Accounting policy choice within the Sharī'ah Islami'iah framework. In M. D. Bakar, & E. R. A. Engku Ali (Eds.), *Essential readings in Islamic finance*. Kuala Lumpur, Malaysia: CERT.
- Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, 31(1), 405-440. doi: <https://doi.org/10.2139/ssrn.258514>
- Hooghiemstra, R., Hermes, N., & Emanuels, J. (2015). National culture and internal control disclosures: A crosscountry Analysis. *Corporate Governance: An International Review*, 23(4), 357-377. doi: <https://doi.org/10.1111/corg.12099>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360. doi: [https://doi.org/10.1016/0304-405x\(76\)90026-x](https://doi.org/10.1016/0304-405x(76)90026-x)
- Jin, L., & Myers, S. C. (2006). R^2 around the world: New theory and new tests. *Journal of Financial Economics*, 79(2), 257-292.
doi: <https://doi.org/10.1016/j.jfineco.2004.11.003>
- Kennedy, E. J., & Lawton, L. (1998). Religiousness and business ethics. *Journal of Business Ethics*, 17(2), 163-175. doi: <https://doi.org/10.1023/a:1005747511116>

- Li, K., Morck, R., Yang, F., & Yeung, B. (2004). Firm-specific variation and openness in emerging markets. *The Review of Economics and Statistics*, 86(3), 658-669. doi: <https://doi.org/10.1162/0034653041811789>
- Morck, R., Yeung, B., & Yu, W. (2000). The information content of stock markets: why do emerging markets have synchronous stock price movements? *Journal of Financial Economics*, 58(1), 215-260. doi: [https://doi.org/10.1016/s0304-405x\(00\)00071-4](https://doi.org/10.1016/s0304-405x(00)00071-4)
- Mills, N. L. & Peterson, J. (2018). *Should the Big Four accountancy firms be split up?* Retrieved from <https://goo.gl/2HDDKA> (accessed on March 21 2018)
- Noreen, E. (1988). The economics of ethics: A new perspective on agency theory. *Accounting, Organizations and Society*, 13(4), 359-369. doi: [https://doi.org/10.1016/0361-3682\(88\)90010-4](https://doi.org/10.1016/0361-3682(88)90010-4)
- Ousama, A. A., & Fatima, A. H. (2010). Voluntary disclosure by Sharī'ah approved companies: an exploratory study. *Journal of Financial Reporting and Accounting*, 8(1), 35-49. doi: <https://doi.org/10.1108/19852511011055943>
- Piotroski, J. D., & Roulstone, D. T. (2004). The influence of analysts, institutional investors, and insiders on the incorporation of market, industry, and firm-specific information into stock prices. *The Accounting Review*, 79(4), 1119-1151. doi: <https://doi.org/10.2308/accr.2004.79.4.1119>
- Roll, R. (1988). R-S1-2. *Journal of Finance*, 43(3), 541-566. doi: <https://doi.org/10.1111/j.1540-6261.1988.tb04591.x>
- Sabato, G. (2010). Financial crisis: where did risk management fail? *International Review of Applied Financial Issues and Economics*, 2(2), 315-320. doi: <https://doi.org/10.2139/ssrn.1460762>
- Skaife, H. A., Gassen, J., & LaFond, R. (2006). *Does stock price synchronicity represent firm-specific information? The international evidence.* Retrieved from <https://goo.gl/GV61Pn> (accessed on 23 June 2018)
- Sulaiman, M. (2001). Testing a model of Islamic corporate financial reports: Some experimental evidence. *International Journal of Economics, Management and Accounting*, 9(2), 115-39.

APPENDIX

Voluntary Disclosure Index

Description of Coding Scheme used to Analyze Annual Reports and 10-K Filings

I. Summary of historical results

- a. Return on assets or sufficient information to compute ROA (net income, tax rate, interest expense and total assets)
- b. Net profit margin or sufficient information to compute PM (net income, tax rate, interest expense and sales)
- c. Asset turnover or sufficient information to compute TAT (sales and total assets)
- d. Return on equity or sufficient information to compute ROE (net income and total equity)
- e. Number of quarters that firm discloses sales and net income
- f. Trends in the industry
- g. Discussion of corporate strategy

II. Other financial measures

- a. Free cash flow (or cash flow other than those reported in SCF)
- b. Economic profit, residual income type measure
- c. Cost of capital (WACC, hurdle rate, EVA target rate)

III. Non-financial measures

- a. Number of employees
- b. Average compensation per employee
- c. Percentage of sales in products designed in the past few (3-5) years
- d. Market share
- e. Units sold (or other output measure, e.g., production)
- f. Unit selling price
- g. Growth in units sold (or growth in other output measure, e.g., production)
- h. Growth in investment (expansion plans, number of outlets etc.)

IV. Projected information (for company as a whole)

- a. Forecasted market share
- b. Cash flow forecast
- c. Capital expenditures, R&D expenditures or general investment forecast
- d. Profit forecast
- e. Sales forecast
- f. Other output forecast
- g. Industry forecast (of any kind)
