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Bank Disclosure and Stock Price Synchronicity: Evidence from Dual-Banking System Countries

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ABSTRACT

In stock markets, information plays a crucial role in determining trading dynamics and price discovery. In investment decisions, an investor may have incomplete information regarding the firm-specific factors because of information asymmetry. Therefore, investors rely on market factors. Extensive work has been done on stock price synchronicity (SYNCH) from the dual banking system viewpoint. Therefore, the present study examines the association of Stock Price Synchronicity with Bank's Disclosure items and Shariah Compliance using data of 138 banks for 09 years (2011-2019) by taking dual banking system countries. We consider 11 countries, i.e., Bahrain, Bangladesh, Kuwait, Lebanon, Malaysia, Pakistan, Qatar, Saudi Arabia, Turkey, UAE, and Yemen, for analysis. We select different banks based on these countries' dual banking systems and exclude two countries (UAE & Yemen) due to data availability issues. Data of 138 banks is analyzed using specific statistical techniques like descriptive statistics, correlation, Fisher-type unit-root test, endogeneity test, and generalized method of moments (GMM) by using STATA. In the analysis, we found that bank disclosure has a significant positive relationship with SYNCH. However, shariah compliance banks have a significant negative relation with SYNCH. Moreover, control variables which include bank profitability, and leverage have a significant positive relationship with SYNCH. The banks' size has a significant negative relationship because the size affects the banks according to the market.

Keywords: Stock Price Synchronicity, Bank's Disclosure, Asymmetric Information, Banking Sector

1. INTRODUCTION

In stock markets, information plays a crucial role in determining trading dynamics and price discovery because investors rely on market factors. According to financial economists, stock prices are adjusted to represent the information available

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either by company-specific information or market-wide information. Previous studies have provided clear answers to the question of how company information can influence the importance of company-specific information (financial disclosure) related to market factors (Jin and Myers, 2006 and Piotroski & Roulstone, 2004 and Chan & Hameed, 2006 and Morck, Yeung & Yu, 2000). Researchers have recently believed that if the business environment causes stock prices to accumulate more company-specific information, market factors should reflect a smaller percentage change in stock returns. In short, using a standard market model, the synchronization regression value of the R^2 stock return should be lower.

Researchers have done extensive work on SYNCH by getting R^2 from individual stock regression to stock market returns. Synchronicity states the propensity of stocks in a share market to move correspondingly. Depending on the market's movement, the stock may move upwards or downwards. Stock prices in developed economies are less synchronized than in emerging economies (Khandaker, 2015). Still, discovering the fundamental characteristics of stock market synchronicity is a difficult task.

According to research conducted by Roll (1988), stock market synchronicity relies on the comparative amounts of company-level as well as market-wide information capitalized into the stock prices. Several studies use R-squared as a stock price synchronization indicator to measure information effectiveness (Wurgler, 2000 and Durnev, Li, Morck, and Yeung, 2003). To capture a company-level stock price line, the R-square is a robust measure. This model is considered to provide an accurate picture of the stock market's synchronous behavior because it measures the correlation between market performance data and a company's stock performance data over a given period. However, the R-squared synchronization measure cannot represent stock market synchronization in a short period, such as for a given week. Additionally, for measuring R-square synchronicity, this method needs market return data and stock return data from individual firms.

The R-square method apprehends levels of company-specific information reflected in share prices. In the literature, the R-square measure of stock price synchronization is perhaps the most widely used approach to capturing stock price

movements. A lower R-squared value determines the lower synchrony stage of the stock price, while a higher R-squared value determines a greater synchronization of stock prices (Khandaker, 2015).

In the last few years, literature in finance and economics has shown growing attention towards the determining factors of banks' SYNCH (e.g., Morck et al, 2000; Jin and Myers, 2006). However, more specifically, whether the essential characteristics that impact the synchronization of share prices in the banking sector are still in question. As in different economies worldwide, banks are the most essential and considerable source of financing and banks perform essential functions, like allocating the different resources, monitoring firms, and contributing to economic development (Levine, 2005). In the present research, we try to determine the answer to this question by investigating what factors establish or determine the bank's SYNCH.

Different factors can affect the SYNCH, an important feature that can be a reason for affecting the SYNCH is financial disclosures by the firms. According to International Accounting Standard Board (IASB), financial reporting is to produce information about the financial situation, performance, and changes in the financial positions that is helpful for those users who make economic decisions. Therefore, financial reporting is a technique of following standard practices for providing an accurate or truthful depiction of the company's finances to the world. Disclosure laws and financial reporting/information can enhance informational efficiencies in financial markets. Securities regulations are integral to efficient capital markets and are the channel through which financial reporting and disclosure improve corporate information flows (Coffee, 1984; Levitt, 1998; Bushee and Leuz, 2005). Supporters of transparency regulations argue that the costs of information production, agency costs, entice managers to report financial information voluntarily only to a partial extent, and they often strategically bias their disclosures (e.g., Coffee, 1984; Shin, 2003; Zingales, 2009; Goto, Watanbe, and Xu, 2008). Consequently, without transparency regulations, financial markets will not function efficiently (Hart, 2009; Honigsberg, Jackson, and Wong, 2015).

Research conducted by Haggard, Martin, & Pereira (2008) examines the effect of voluntary information disclosure on SYNCH and the degree of stock price crashes.

Higher disclosure means an increased level of company-specific information presented to market participants. It indicates the negative relationship of SYNCH with the disclosure of company-specific information. The study related to emerging economies is conducted by Chan & Hameed, (2006) reveals that cost associated with firm-specific information will be increased when there is the disclosure of poor information and absence of corporate transparency, which leads security analysts to earn from the forecast based on macroeconomic information.

Among all other major industries, the financial industry is highly structured. For measuring the bank's condition, supervisory systems require bank-specific information (Meyer, 1999 and Greenspan, 2001). According to Roll (1988), there is significant variation in the coordination of bank shares with the broader market, and better coordination with the broader market suggests that bank stock returns are less influenced by specific bank information. The available literature (Morck et al., 2000) on synchronization also indicates that in countries where institutions are more advanced (reliable company-specific information is available), weak stock price synchronization or variation in Company-specific stock returns is high.

Islamic banking has grown rapidly in many Islamic countries. This tendency has changed the banking sector structure in many Muslim countries into a dual system where Islamic banks operate alongside their conventional counterparts and provide financial services by individual religious beliefs, thus facilitating access to financing for the general population. In addition to the rapid growth of Islamic banking, researchers have explored various aspects of this innovation. In particular, its standalone risks such as credit, insolvency, market, liquidity, and interest rate risks have been examined in the literature (Abedifar et al., 2016; Ergeç, and Arslan, 2012; Fakhfekh et al., 2016; Hasan and Dridi, 2011; Pappas et al., 2016). This study aims to fill this gap and explore the relationship between stock price synchronization and banks' exposure to the dual banking system. The needs explored the rapid transformation of the financial system in several Muslim countries and have drawn policymakers' attention. It's also discussed the market player's consequences of stock price synchronization and the dual banking system's financial stability (Abedifar, et al., 2017).

Several studies conducted in the context of SYNCH Ahmed (2014) found a relationship between proxies of different governance mechanisms, information disclosure, and share price synchronization for 2006 and 2008 in India for ten different industries but could not consider the banking sector. Likewise, a study conducted by Zia (2017) explores the company-specific factors of stock price synchronization of the Pakistani equity market by using a sample consisting of 12 years from July 2003 to June 2015. Jamil (2017) investigates the linkage between market volatility and stock price synchronization at a country level and market microstructure level for the companies listed on Pakistan's stock. According to that research, some variables are missing, which can also be used for further research in Pakistani and foreign banks. Faraz (2017) explores the dynamics of SYNCH for the non-financial sector. Since his study only focuses on the Pakistani stock market, it is useful to study the similar characteristics for other foreign financial markets (banks), allowing investors to distinguish specific changes for different countries and the Pakistani market model. Similarly (Ahmed 2017, Ayesha 2017, Kganyago, Nataraja, and Song 2015, Omer 2014, Gupta and Ikoku 2013, Bill and Kumar 2012, Marsden and Chung 2011) conducted in the perspective of SYNCH. Recently, Ghafoor and Hassan (2018) conducted a study and found out the impact of some firm-specific variables and enterprise risk management on the SYNCH.

According to my best knowledge nobody emphasizes on the SYNCH for the financial sector more specifically the banking sector, therefore, the proposed study tries to fill this gap by finding out the relationship between SYNCH and bank's disclosure, shariah-compliant banks in the presence of control variables banks size, banks profitability and leverage in the perspective of the foreign banking sector and compare these results with the Pakistani banks.

The issue of stock price synchronization has attracted academicians and practitioners during the current decade. Some work has been done and published related to various parts of the world. But in Pakistan, little work has been conducted in the Pakistani banking industry which a completely financial market. In developing countries, like Pakistan, SYNCH phenomena have been studied widely in different sectors, including non-financial firms or institutions. There are limited studies that have

extensively found out the relationship of SYNCH with bank disclosure and shariah compliance banks. While in the present study tried to figure out the connection between SYNCH with bank disclosure and shariah compliance banks in the presence of some control variables in banks size, banks profitability, and leverage specifically for the financial sector or institutions. So, there is a need to conduct this study to analyze the determinant of SYNCH for the financial sector or institutions of developed countries and discover the impact of this major determinant on SYNCH. While on the other hand, it is also very essential to compare Pakistani banks' SYNCH with foreign banks. Local and foreign investors' aim in this market requires that this area of research be further explored, especially in the context of factors that influence stock price synchronization.

- The present study is a novel attempt to investigate the impact of bank disclosure and shariah compliance in the presence of control variables (bank size, bank profitability, and leverage) on SYNCH for Pakistani banks and foreign banks.
- This research significantly contributes to the current literature by confirming the SYNCH of the banking sector in developed and developing countries.
- The present study guides the regulators to emphasize banks for transparent disclosure of firm-specific information. It results in the efficient working of the stock market.
- This study also guides, the managers to take steps to manage the bank's disclosure information that has the potential to affect the SYNCH.
- The present study also guides investors regarding rational security analysis and incorporates those factors while making investment strategies that can influence SYNCH.
- This study will contribute to the existing literature as financial reporting and disclosure laws can improve financial markets' informational efficiencies.
- This research would significantly contribute to the current literature by presenting proof about the SYNCH of the banking sector in developed and developing countries.
- This study would also be helpful for the investor in allocating resources in financial markets.

The structure of the paper is as follows. Section II consists of a literature review of all discussed variables. Section III describes the research methodology. Section IV explains the empirical findings (results). Section V is all about the conclusion of the results and recommendations.

2. LITERATURE REVIEW

2.1. Banks Disclosure and Stock Price Synchronicity

A study related to emerging economies was conducted by Chan & Hameed, (2006) reveals that cost associated with company-specific information would increase if there were disclosure of poor information and absence of corporate transparency, which leads security analysts to earn from the forecast, based on macroeconomic information. Similarly, according to Haggard, Martin, & Pereira, (2008) stock price synchronicity and the frequency of stock price crashes effectively reduce in case of voluntary disclosure. Research suggests that for the efficiency of firm capital investment informed stock prices are essential. Moreover, results demonstrate that investors' access to company-specific information and stock prices become better in disclosure, leading to improved corporate governance and firm investment. Another important aspect that can affect the stock price synchronicity is voluntary disclosures by the firms.

Research conducted by Haggard, Martin, & Pereira (2008) examines the effect of disclosure on stock price synchronicity and the degree of stock price crashes. Their data consist of 2084 firms for the years starting from 1982 to 1995 and the sample is limited to firms for which the annual volume of disclosure data is available and contains no business firm in regulated industries. Higher disclosure indicates an increased amount of company-specific information available to market participants, reflecting the negative correlation between stock prices' synchronicity and the disclosure of company-specific data. This study's results confirm the negative relationship between stock price co-movement and a high level of disclosure, which means disclosure raises the firm-specific information available to an investor.

According to the hypothetical model put forward by Veldkamp (2006), if company-specific information is less accessible to outside speculators due to a lack of

sufficient information on bank financial statements, financial experts will rely more on market data to trade. After that, bank stocks are gradually aligned with the market, have higher stock value synchronization, and incorporate bank-specific data content.

Compared with commercial enterprises, banks' financial statements are increasingly confused for viewing by outside speculators due to changing bank credit contacts and complex monetary subsidiaries (Greenspan, 1996). Lang and Lundholm (1993) show that the measure of exposure to annual reports is deeply related to the degree of disclosure by other media. Nier (2005) shows that a bank's financial stability can be altered by higher bank disclosure. Nier and Baumann (2006) identify that better annual disclosure of bank financial information can reduce risks in the banking sector. According to the hypothetical predictions proposed by Jin and Myers (2006), if banks' financial statement disclosure standards are removed, it could show that banks are hiding a lot of negative data. When such terrible data aggregate retention charges and banks cannot handle the cost, banks can offload all negative data abruptly. Therefore, their stocks will be doomed to incredibly negative returns and crash.

In contrast, stock market price synchronization is associated with various fundamental principles specific to banks and bank share price volatility (Morck et al., 2000). Haggard et al. (2008) explained that stocks of finance companies with higher information disclosure levels show weaker stock price synchronization. Hutton et al. (2009) explained that stocks of financial firms with better accounting quality are less in line with the overall market and less likely to collapse. Jin and Myers (2006) show that the stocks of finance companies that have disclosed more transparent information are less aligned with the overall market. According to Russell (2015), continuously disclosing the firm's financial accounting information positively influences stock price variation. PALOT (2018) conducted a study and found out the Turkish banks' stock price synchronicity and explained the association between synchronicity and stock market returns.

Ho: *There is a significant negative relationship between the bank's disclosure and the stock price synchronicity of banks.*

2.2. Shariah Compliant and Stock Price Synchronicity

Religion is known as one of the most critical elements of people's lives. Islam provides a comprehensive code of life dealing with religion, sociology, economics, and politics (Ousama & Fatima, 2010). According to Islam, all world resources belong to Almighty Allah, and humans are merely trustees (Ousama & Fatima, 2010). According to Noreen (1988), religion is an effective tool for improving people's ethical and moral behavior in economics and business-related activities. Individuals are inspired by faith to obey the types of moral standards that are appropriate for ethical behavior compliance. In the field of accounting and finance, the decision falls under the domain of economic rationality, which is solely concerned with maximizing shareholders' capital (Haniffa et al., 2008). Hence, the best accountings practices are those which best fulfill the fundamental objectives of economic rationality. The capitalistic school of thinking, on the other hand, considers nothing moral if economic gains are not realized. In Islam, it is emphasized that resources should be divided so that they are fairly distributed among all economic groups, with the greatest possible disparity between rich and poor. As a result, accounting can be described as a mechanism for achieving distributive justice and equality in communities, rather than merely a technical practice. This is a unique contractual relationship that forbids companies from participating in any behavior that affects society and sets high ethical and moral standards in business activities (Haniffa et al., 2008). In the field of accounting and finance, Islam places a greater focus on the disclosure side of financial statements rather than calculation methods, since there is no practical distinction between traditional and Shariah-compliant measurement aspects (Ousama & Fatima, 2010). According to the social transparency and full disclosure principle, a business pursuing Shariah compliance must report all accurate and complete economic details. A company's social transparency emphasizes the company's responsibility to society, as society has a right to get all material economic details related to the company's operations and activities that affect society (Sulaiman, 2001). The absolute, applicable, and authentic financial disclosure helps a person make religious, financial, and economic decisions.

Abdul-Rahman (2012) explores the correlation between Islamic ethical principles

and financial reporting efficiency by analyzing whether a firm's religious orientation influences its accounting conservatism actions. According to the analysis, Shariah-compliant companies are more conservative in disclosing accounting income figures than conventional firms. According to the study, Islamic ethical principles also reduce managerial opportunism and more aggressive financial reporting activity, resulting in higher earnings. Due to social responsibility and full transparency concepts, Shariah-compliant businesses are expected to adopt ethical reporting practices. This Shariah-compliant filter allows Shariah-compliant banks to reduce the information asymmetry environment, resulting in low stock price synchronicity. As a result, we hypothesize that Shariah-compliant banks should have low stock price synchronicity.

H₁: *There is a significant negative relationship between Shariah-compliant banks and stock price synchronicity.*

2.3. Bank Size and Stock Price Synchronicity

The size of the company (bank) has the potential to influence the stock price synchronicity of the financial sector of an economy. For studying the size effect firm (bank) size is used as a control variable. Skaife, Gassen conducted a study, and LaFond (2006) declare that the larger companies disseminate more rich information so they should report low synchronicity, and it depicts the negative association between firm size and stock price synchronicity. While, on the other hand, larger businesses appear to have a more diversified portfolio that puts them more in line with the direction of the economy, resulting in a direct (positive) correlation with the stock price synchronicity (Piotroski & Roulstone, 2004; Roll, 1988). According to Zia (2017), if firm size increases, it would decrease stock price synchronicity. Stocks of major banks are more likely to be linked to the whole market, as they generally have more effect on the whole market and less opacity.

H₂: *There is a significant positive relationship between bank size and stock price synchronicity.*

2.4. Bank Profitability and Stock Price Synchronicity

In the present study, firm profitability is added to represent the impact of firm performance on stock price synchronicity. More successful businesses are mostly seeking

more attention from investors and analysts, thereby showing a high R². The greater price reaction, as indicated by the learning hypothesis (Chen, Goldstein, & Jiang, 2007; Foucault & Fresard, 2014), encourages managers to gain more knowledge and use it in influencing their investment decisions, which eventually leads to a greater effect on the potential profitability of the business. Similarly, a study was conducted by Wei Hao (2015), results show that Stock price Synchronicity has a positive relationship with firm size, Stock Turnover, Payout Ratio, Earnings, and profitability.

H₃: *There is a significant positive relationship between a bank's profitability and stock price synchronicity.*

2.5. Leverage and Stock Price Synchronicity

The leverage effect is also introduced as a control variable because, according to pecking order theory, in the case of information asymmetry, companies prefer to finance with debt rather than equity as this indicates to the board of directors expect effective investment (Frank & Goyal, 2003). Thus, it can also be observed that companies that rely more on debt than equity appear to have an asymmetric information environment that results in greater stock price synchronization.

H₄: *There is a significant positive relationship between leverage and stock price synchronicity of banks.*

3. RESEARCH METHODOLOGY

3.1. Data Description and Sample

In the present study, secondary data is used for analysis. Therefore, different websites are used to gather secondary data as required by this study. Data used for Pakistani banks are collected from the banks' websites, State Bank of Pakistan, and international banks. All required data is collected from the bank scope.

In a financial intermediary, a bank plays a significant role in the development of the economy. The financial sector establishes the fundamentals of Pakistan's financial sector. In essence, banking is a vital part of the global economy, and its significance in the global financial services industry cannot be overstated (Katircioglu, Tumer, & Kilinc, 2011). The present study is conducted to find the impact of bank disclosure and shariah

complaints on stock price synchronicity. Therefore, the banking sector is the population of this study. According to the selected population, 11 Asian countries (Bahrain, Bangladesh, Kuwait, Lebanon, Malaysia, Pakistan, Qatar, Saudi Arabia, Turkey, UAE, and Yemen) banks will be considered, including Pakistan. In data collection drops two countries, i.e., UAE and Yemen, because of data availability issues. We take 09 years of data from the year 2011 to 2019 for analysis.

3.2. Model Specification for Stock Price Synchronicity

This study uses the synchronicity of stock returns as a proxy of informational opacity. As discussed, earlier stock price synchronicity is taken as a dependent variable for the present study. Market model R square will be used as a proxy of stock price synchronicity measured through the basic asset pricing model. The study will use monthly market returns and monthly individual firm stock returns anticipated by several studies (Morck et al., 2000; Dasgupta et al., 2010; Li et al., 2014; Zhang et al., 2016).

The following model will be used as explained in equation 1.

$$R_{i,t} = \alpha_{i,t} + \beta_{i,t} R_{MKT\ i,t} + \epsilon_{i,t} \quad (i)$$

Here

$R_{i,t}$ is the return of individual firm (bank) stock return.

$R_{MKT\ i,t}$ is value weighed market returns.

For each company R square measure of Durnev, Morck, and Yeung (2004) is applied by log transformation of R-square as described in equation 2.

$$SYNCH_{i,t} = \ln(R^2 / 1 - R^2) \quad (ii)$$

Here

SYNCH stands for stock price synchronicity.

R^2 stands for R square.

ln is for log transformation.

This logarithmic transformation equals the ratio of the variance explained to the unexplained variance. This study chooses monthly frequency. In the sample, Synch is computed for each firm year. High values indicate companies whose stock returns are strongly linked to market returns and accordingly reflect less company-specific

information and so more opaque.

3.3. Model Specification for Banks Disclosure

A critical aspect affecting the stock price synchronicity is voluntary disclosures by the firms (banks). Jin and Myers (2006) demonstrate that business companies' stocks are less synchronized with the entire market in a country with a more open information environment and less chance of a crash. The level of financial disclosures will be determined in the current study by reviewed bank financial reports (Hooghiemstra et al., 2015). The index is defined in equation 3.

$$DISC = 1/21 \sum_{i=1}^{17} s = 1 \quad (iii)$$

Here

DISC stands for disclosure.

Σ stands for the sum of all disclosure items.

The complete index is given in Appendix 1.

3.4. Theoretical Framework

To study the impact of bank disclosure and Shariah Compliant banks by using control variables like bank size, bank profitability, and leverage on stock price synchronicity, we developed an econometric model. Figure 1 shows the schematic diagram for our model.

Figure 1. The impact of Banks Disclosure and Shariah Compliance Banks on Stock Price Synchronicity

3.5. Econometric Model and Variables Measurement

This study includes a dependent variable named stock price synchronicity, which is measured through the R square approach. R square approach captures levels of firm-specific information expressed in share prices. The R-square measured stock price synchronicity, which is likely to be the most frequently used literature for capturing stock price fluctuations. This indicator captures stock price synchronicity at the firm level, which is then averaged to produce a country-level indicator.

While, on the other side, the independent variables of this study are bank disclosure, shariah compliance. Control variables are bank size, bank profitability, and leverage. As per the defined model econometric equation will be in describing in equation iv.

$$SYNCH_{i,t} = \alpha + \beta(BDS)_{i,t} + \beta_1(SCB)_{i,t} + \beta_2 \sum_{i=0}^{99}(CONTROLS) \quad (iv)$$

Table 1 shows the model variable, symbols, definitions, and descriptions.

Table 1. Model Variables, Symbols, Definitions, and Description		
Full Name	Abbreviated Name	Description
Dependent Variable Stock Price Synchronicity	SYNCH	For each bank R square measure of Durnev, Morck, and Yeung (2004) is applied by log transformation of R-square: $SYNCH_{i,t} = \ln(R^2/1-R^2)$
Independent Variables Banks Disclosure	BDS	The level of financial disclosures is determined by examining bank financial reports (Hooghiemstra et al., 2015). The index is defined as $DISC = 1/21 \sum_{i=1}^{17} s = 1$
Shariah Compliance	SCB	Dummy variable with the value of “1” if the bank is <i>shariah</i> complaint and with the value of “0” if the bank is not <i>shariah</i> complaint (Ghafoor & Hassan, 2018).
Control Variables Banks Size	BASIZE	Banks' size is measured as a log of total assets. (Francis et al., 2012).
Banks Profitability	BAP	Banks' profitability is measured by the ratio of Net Income/Total Assets. (Ghafoor & Hassan, 2018).
Leverage	LEVRG	The debt/equity ratio measures leverage. (Tas et al. 2016; Ghaffor & Hassan, 2018).

4. RESULTS AND DISCUSSION

This section of the study reports the results of all variables from the years 2011 to 2019. The analysis starts with descriptive statistics to shows the nature of information disclosure and its link with SYNCH.

4.1. Descriptive Statistics

Table 2 presents the descriptive statistics to investigate the statistical behavior of the data. Descriptive statistics contain mean, median, standard deviation, skewness, kurtosis, minimum and maximum values of all reported variables of the present study. The central value of data is expressed by the mean and median, while the standard deviation represents the volatility. The maximum and minimum values give information regarding the range of data. The average across all nine years is presented in Table 2.

Table 2. Descriptive Statistics of the model variable for the period of 2011-2019

	SYNCH	BDS	SCB	BASIZE	BAP	LEVRG
Obs.	1242	1242	1242	1242	1242	1242
Mean	1.0912	0.6477	0.2756	7.7296	0.0113	0.8374
Median	0.9917	0.7089	0.0000	8.0440	0.0112	0.8916
Std. Deviation	2.4626	0.1456	0.4470	1.1547	0.0359	0.2144
Skewness	-0.1269	1.9132	1.0045	-0.1661	-1.2508	-0.6338
Kurtosis	6.5437	0.6444	2.0091	2.9086	49.4673	14.9862
Min	-13.1439	0	0	5.0167	-0.4003	0.0065
Max	12.8076	13	1	10.8243	0.3766	2.4303

Note: This table presents the descriptive analysis for the dependent variable stock price synchronicity, independent variables banks disclosure and *shariah* compliance banks, and control variables banks size, banks profitability, and leverage used in the sample model. SYNCH: $\ln(R^2/1-R^2)$; BASIZE: banks size (natural logarithm of total assets); ROA: banks profitability (ratio of net income to total assets); LEVRG: firm leverage (Long-term debt/capital equity).

The mean of SYNCH is 1.0912, the highest R-squared for any bank's market model is 12.8076, and the lowest R-squared is -13.1439 with a standard deviation of 2.4626. The mean of the overall bank disclosure index is 0.4477, which means that banks report 44.77% of information on average. On average, the sample banks disclosed the overall bank disclosure index, with a minimum value of 0 and a maximum of 13. There is a large variation in bank disclosure items among the sample banks of different selected

countries. The standard deviation of the bank's disclosure index is 0.1456. Table 2 shows that the average of shariah complaints is 0.2756, having 0 minimum and 1 maximum as this is the dummy by having 1 for sharia compliance banks and 0 for non-sharia compliance banks.

The average bank size is 7.7296, and the largest bank size is 10.8243. The lowest bank size is 5.0167 with a standard deviation of 1.1547. Similarly, the average banks profitability is 0.0113, with the highest value of 0.3766 and the lowest value of -0.4003 with a standard deviation of 0.0359. Table 2 values of skewness fall between -3 and +3, which are acceptable with a maximum value of 1.0045 and the lowest value of -0.1269. Also, kurtosis shows a mixed trend with a maximum value of 49.4673 and the lowest value of 2.0091. Table 3 shows the numbers of banks that are included in the sample.

Table 3. Number of Banks Included in the Sample		
Serial No.	Countries	Number of Banks (Commercial & Islamic)
1	Bahrain	11
2	Bangladesh	33
3	Kuwait	13
4	Lebanon	06
5	Malaysia	06
6	Pakistan	26
7	Qatar	09
8	Saudi Arabia	11
9	Turkey	23
10	UAE	0
11	Yemen	0
Total Banks		138

Note: The table presents the name of countries and the number of banks against each country that are taking under consideration for the analysis of the present study.

4.2. Correlation Results

The correlation between SYNCH and each of the other independent variables (bank disclosure & shariah compliance) and control variables (bank size, bank profitability, & leverage) is represented in table 4.

Table 4. Correlation Matrix

	SYNCH	BDS	SCB	BASIZE	BAP	LEVRG
SYNCH	1					
BDS	0.0850***	1				
SCB	0.0880***	0.2755***	1			
BASIZE	0.1538***	0.4611***	-0.3475***	1		
BAP	-0.0060***	-0.0236***	-0.0919***	0.0282***	1	
LEVRG	0.1121***	0.3640***	0.0248***	0.3849***	-0.2589***	1

Note: This table states the correlation of all variables. All variables are the same as define in Table 2. ***, **, and * indicates the level of significance at 1%, 5%, and 10%, respectively.

The results indicate that SYNCH is positively correlated with bank disclosure, shariah compliance, bank size, leverage, and negatively correlated with banks profitability. These results are consistent with the findings of Ghafoor (2018), which found a positive correlation of variables (bank disclosure, shariah compliance) with SYNCH and negative with banks' profitability.

4.3. Unit Root Test

Before estimating the panel regression model, we have conducted a test for the variable unit root. Table 5 represents the results of the Fisher-type unit-root test based on augmented Dickey-Fuller tests.

Table 5. Fisher-Type Unit-Root Test

Fisher-type unit-root test Based on augmented Dickey-Fuller tests	Z Statistic	p-value
SYNCH	-8.2951***	0.0768
BDS	2.2437***	0.9876
SCB	-11.7473***	0.3454
BASIZE	1.2101***	0.8869
BAP	-3.6226***	0.0011
LEVRG	-3.1966***	0.0077

Note: The table presents the Fisher-type unit-root test and here ***, **, and * indicates the level of significance at 1%, 5%, and 10%, respectively.

The null hypothesis of this test describes that all panels have a unit root. Based on the results mentioned above, we reject this hypothesis. In Table 5, we have the value of statistics and p-value for the SYNCH and all other defined variables. Since these are all smaller than 0.01, we can reject the null hypothesis at the 1% statistical significance

level. It implies that there are no unit roots in panels under the specified test conditions.

4.4. Cross-Section Dependence Test

Table 6 presents the cross-section dependence test. According to the results of this test strongly rejected H_0 of the non-existence of cross-sectional dependence. All the coefficients of the above variables are significant at a 1% level of significance. Therefore, we conclude that in our set of data, cross-section dependence exists. Table 6 presented the results for the cross-section dependence test.

Table 6. Cross-Section Dependence Test		
Variables Name	CD-Test	p-value
SYNCH	2.332***	0.020
BDS	34.508***	0.000
SCB	0	1.000
BASIZE	155.685***	0.000
BAP	11.913***	0.000
LEVRG	17.136***	0.000

4.5. Estimation Method.

Since the independent variables correlate with the SYNCH, calculating the least squares (OLS) will produce a biased estimate. Also, OLS estimates of lagging dependent variable (SYNCH) will be inconsistent and upward biased due to the correlation of SYNCH with independent variables. The OLS methodology could not be considered because of possible endogenous problems. Therefore, to avoid this bias, this study uses the general moment method estimation (GMM). Since then, GMM estimates have used all available moment conditions and allowed researchers to instruct and make level equations with instruments in the first difference and equations at first differences with instruments in levels more efficient. More about this source text is required for additional translation information.

4.6. GMM Estimation Results.

According to the present study data set, the appropriate estimation method is the Generalized Method of Moments. GMM estimation method is reported a significant relationship of SYNCH with bank disclosure, shariah compliance, control variables (bank size, bank profitability, and leverage) of the dual banking system. The models are

significant and show a probability of less than 0.05. Results are mentioned in given table 7.

Table 7. Generalized Method of Moments (GMM)

	Coef.	Robust Std. Err.	Z	p> z	[95% Conf. Interval]	
BDS	0.2392	0.0212	1.06	0.000	-0.0191	1.0639
SCB	-0.9163	0.1549	-5.91	0.000	-1.2199	-0.6127
BASIZE	-0.2862	0.0401	-7.15	0.000	-0.3647	-0.2077
BAP	1.0249	1.6128	0.64	0.001	-2.1361	4.1859
LEVRG	0.6575	0.3527	1.86	0.000	-0.0339	1.3489

Note: Instruments for equation 1: bds scb basize bap levrg_cons

The present study described the statistically significant and positive relationship of bank disclosure with SYNCH. These results are supported by (Xing & Anderson, 2011). The results show that there is a significant positive relationship between SYNCH and bank disclosure. The beta coefficient of bank disclosure is 0.2392, which shows that a 1% increase in the bank's disclosure increase SYNCH by 0.2392%. The banks that disclose more information are more transparent, less opaque, and lower asymmetric. These results are also consistent with the results of Rasheed et al., 2018.

The results show a significant and negative relationship between Shariah compliance banks and SYNCH, which is not against the hypothesis. Shariah compliance banks' beta coefficient is -0.9163, indicating that a 1% increase in the Shariah compliance banks can decrease SYNCH by -0.9163%. The supportive theory suggests that the Shariah-compliant banks will be more transparent because of their complete disclosure of information and different codes of ethics, resulting in the low SYNCH.

In the present study, bank size has a significant and negative relationship with SYNCH. The beta coefficient of bank size is -0.2862, which means that a 1% increase in bank sizes decreases SYNCH by 0.2862 percent. According to the previous studies, researchers find out the mixed results of size with SYNCH (Skaife et al., 2006; Piotroski & Roulstone, 2004; Roll, 1988). The previous studies discussed that there would be a negative association between bank size and SYNCH because larger firms/banks disseminate more transparent and rich information that leading to low synchronicity (Piotroski and Roulstone, 2004).

The study also depicts a significant and positive relationship between banks' profitability and SYNCH. The banks with higher profits tend to be more in tune with market fluctuations. Pecking order theory discusses that the banks who rely more on debt instead of equity financing would have higher asymmetric information and therefore reflect the higher SYNCH. The theory also discusses that the statistically significant and positive results of leverage show that the banks with more financing through debt are more opaque and higher asymmetric information environments. Those results are consistent with the previous study conducted by Ghafoor (2018).

5. CONCLUSION

This study examines the relationship of SYNCH with bank disclosure and Shariah complaints banks of Asian dual banking system countries by using 138 banks from 2011 to 2019. The proposed study explores the effects of the dual banking system in this area. The disclosure of financial information is an essential component of Shariah. The concept of disclosing information in Islam enforces the Shariah complaint banks to minimize their asymmetric environment and maximize transparency. This study finds a significant and negative relationship between Shariah compliance banks and SYNCH. These results indicate and support the theory that Shariah-compliant banks should be more transparent because of their complete disclosure of information and different codes of ethics, resulting in the low SYNCH. This study report that fluctuation of prices in large banks affects the synchronization with the market. Therefore, investors used this information for the allocation of financial resources. The study also declares the significant relationship between control variables, including bank size, bank profitability, and leverage.

Recommendations:

1. This study considers only Asian dual banking system countries for analysis. However, in the future, the same model can be extended over the financial sector of other countries.
2. It is also possible to extend this work to the non-financial sector of Asia or other countries.
3. It is also recommended to extend this idea by using more time instead of just using 9 years data, by using more data more good results would be obtained.

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Appendix 1

Information		Sub-index	Categories
Assets			
	Loans	S1: Loans by maturity	Less than three months, three to six months, six months to one year, one to five years, more than five years
		S2: Loans by type	Loans to municipalities/government, mortgages, HP/lease, other loans
		S3: Loans by counter party	Loans to group companies, loans to other corporates, loans to banks
		S4: Problem loans	Total problem loans
		S5: Problem loans by type	Overdue/restructured/other nonperforming
	Other earning assets	S6: Securities by type	Detailed breakdown: Treasury bills, other bills, bonds, CDs, equity investments, other investments Coarse breakdown: government securities, other listed securities, non-listed securities
		S7: Securities by holding purpose	Investment securities, trading securities
Liabilities			
	Deposits	S8: Deposits by maturity	Demand, savings, less than three months, three to six months, six months to one year, one to five years, more than five years
		S9: Deposits by type of customer	Bank deposits, municipal/government
	Other funding	S10: Money market funding	Total money market funding
		S11: Long-term funding	Convertible bonds, mortgage bonds, other bonds, subordinated debt, hybrid capital
	Memo lines	S12: Reserves	Loan loss reserves (memo)
		S13: Capital	Total capital ratio, tier 1 ratio, total capital, tier 1 capital
		S14: Contingent liabilities	Total contingent liabilities
		S15: Off-balance-sheet items	Off-balance-sheet items
Income Statement			
		S16: Noninterest income	Net commission income, net fee income, net trading income
		S17: Loan loss provisions	Loan loss provisions