

PRIMARY RESEARCH

## Characteristics of Sharī'ah Supervisory Board, Corporate Governance Mechanisms and Efficiency of Islamic Banks: Evidence from Listed Banks in Asia

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### Keywords

Corporate Governance  
Sharī'ah Supervisory Board  
Bank's Efficiency

**Received:** 31 January 2018

**Accepted:** 2 July 2018

**Abstract.** This study investigates the impact of characteristics and role of Sharī'ah Supervisory Board (SSB) and corporate governance mechanisms on efficiency in Islamic Banks (IBs). A sample of 30 banks is drawn from those IBs that are listed on Asian stock markets. Corporate and SSB act as guardians of rights of minority shareholders by constantly monitoring controlling shareholders. The characteristics of both these boards affect the procedures installed thus affecting efficiency of these financial institutions. Multivariate panel data regression analysis is employed as the estimation procedure. The results show that a few characteristics of both the boards are positively related to efficiency. The study reports an empirical evidence of positive association between size of the SSB, audit committee independence and efficiency of banks listed in Asia. The results of this study suggest that the users of financial statements should consider characteristics of corporate as well as Sharī'ah boards for the evaluation of respective Islamic banks. This study also notifies that in order to improve efficiency, the regulators should set forth guidelines regarding the size of SSB as well as the percentage of independent members on the audit committee in Islamic banks where governance is shared between the two boards, regulations are constantly being developed and installed with somewhat limited knowledge and skill of board members regarding the implementation of these regulations to improve efficiency.

**KAUJIE Classification:** L22, L24, L25, L33, V12

**JEL Classification:** G21, G24, G3

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### INTRODUCTION

Rapid growth of Islamic financial system and emergence of standards and procedures to guide Islamic financial institutions has increased academic interest in identification of those factors that can improve efficiency. Fu, Lin, and Molyneux (2014) argue that despite other factors, stable stature of corporate governance minimizes risk, creates value and improves

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public accountability, thus increases operational efficiency as well as productivity of banks. Many empirical studies corroborates that corporate governance mechanisms improve efficiency in case of banks (Andrés & Vallelado, 2008; Adams, & Mehran, 2012; Haan & Vlahu, 2016). These studies, while establishing a positive link between corporate governance and bank's efficiency, argue that governance mechanisms affect the bank's ability to reduce cost of capital and improve resource utilization, thus enhance efficiency. The agency theory set forth by Jensen and Meckling (1976) explains this argument. According to this theory, agents (managers) are to operate in line with principal's (shareholder's) interests. Corporate governance guides the agents in their actions and helps them reduce asymmetry in information that can cause agency conflict, hence making the firms more productive and efficient. This role of corporate governance in improving efficiency in Islamic banks is particularly significant. This has to be strengthened while various independent standard-setting organizations have developed standards and procedures to guide and shape the governance procedures of Islamic Financial Institutions (IFIs) (Kumar & Aljifri, 2016).

Islamic banks are the most significant segment of Islamic financial system. The world has seen tremendous growth in Islamic banking industry over the past two decades. IB's have evolved dramatically and become strong competitors of commercial banks in some countries of the world. The existence of two tier board in IBs has played crucial role in this development. One is the corporate board and the other is SSB. The corporate board plays a significant role in setting the direction and offers guidance to any corporate entity (Coleman & Biekpe, 2007). The SSB, on the other hand, offers, "Sharī'ah supervision" meaning that it issues and checks the implementation of pronouncements (*fatāwá*) and also gives recommendations to set right any suspicious act harming the Sharī'ah compliance (Al-layat, 2006; DeLorenzo, 2012). In case of IBs this SSB enjoys the position of an integral component of governance (Shatnawi, 2009).

Emergence and evolution of Islamic financial institutions has compelled the world to think of Islamic banking services as an alternative to conventional banking and investment services (Smola & Mirakhor, 2010). The proponents of finance have agreed upon the fact that Islamic banking system is one of the fastest growing areas in finance because of its increasing market share in numerous emerging markets such as Middle East countries, Malaysia etc. Beck, Dermiguc-Kunt, and Merrouche (2013). The number of Islamic financial institutions has risen to over three hundred in more than seventy five countries concentrated mainly in the Middle East and South East Asia (Sufian & Noor, 2009). Countries like Malaysia and Bahrain are trying to become regional hubs for Islamic financial services (Ariss, 2010). Malaysia today serves as a pioneer in Islamic finance industry as there exists a Sharī'ah Advisory Council (SAC) that is the forum for issuing *fatwá* along with authority to ascertain Islamic laws for the purpose of Islamic banking and finance business. Because of rapid growth in Islamic banking industry, the role and characteristics of Sharī'ah Supervisory as well as corporate boards in improving efficiency of Islamic bank particularly in Asian countries needs to be explored.

This study examines the role and characteristics of SSB and corporate board in bank's efficiency. Although many studies have evaluated the determinants of bank's productivity

and efficiency (e.g., Berger & Humphrey, 1997; Berger, Hunter & Timme, 1993; Berger & Mester, 1997; Strum & Williams, 2008; Salim, Arjomandi, & Seufert, 2016), there is little focus on examining the role of characteristics of SSB (especially the qualification of Shari'ah board members) as well as corporate board in improving efficiency of IB and this study is an attempt to address this gap. This investigation is different from existing studies in a way that it empirically assesses the impact of characteristics of SSB like size and qualification of Shari'ah board members along with various corporate governance mechanisms like board size, board independence, CEO duality and audit committee independence on the efficiency of IB listed in Asia.

The evolution of Islamic banking has paved the way of standards developers to set forth guidelines to run the firms. Though up till now, these guidelines have proved to be fruitful, but still empirical explanation of the role played by the governance mechanism can have several practical implications. This study intends to offer an insight to the managers regarding those factors of Shari'ah board that could affect efficiency of IB. It also offers an overview to investors regarding the operations of IB that operates to ensure Shari'ah compliance besides maximizing their shareholders' wealth.

Following this section of introduction is the review of relevant literature on the topic under discussion. Afterwards, the sections of methodology, results, discussion and conclusion and recommendations are presented.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### SSB

Idrees (2014) argues that it is the responsibility of supervisory board to analyze the actions and behaviors of individuals and institutions in order to certify that these are all Shari'ah compliant. The SSB is an independent body with members that are qualified in Islamic studies or have *fiqh* knowledge and are aware of financial transactions in accordance with Shari'ah rules and regulations (Garas & Pierce, 2010). The functions and duties of SSBs are more or less same in different countries but comprise different number and nature of members (Akbar, 2008; Charles & Chariri, 2012). SSB has two functions. First is the supervisory function and second is the consultative function. The supervisory function deals with issuance of *fatwá* and giving approval to new products while the consultative function is the means to calculate due *zakāh* and giving solutions that are Shari'ah compliant during the implementation of contracts (Garas & Pierce, 2010). The position and authority of SSB is equivalent to board of commissioners in the IB and are sometimes treated as external auditors (Farook, Hassan & Lanis, 2011). The purpose of SSB is to ensure that financial institutions are Shari'ah compliant and to offer the financial institutions the path of religious enlightenment (Rammal, 2006). In Islamic banking, the Shari'ah compliance can be defined as a phenomenon that tells the banks that underlying processes are in accordance with Shari'ah rules and laws that are divine in nature (Ariffin, Archer, & Karim, 2007).

## **Determinants of Bank's Efficiency**

Most of the studies conducted to explore the determinants of bank's efficiency are limited to geographical boundaries with major focus on some firm specific and country specific characteristics. For example, Aly (1990) and Spong (1995) conducted such studies in United States. Pasiouras (2008) has also identified various determinants of efficiency in European financial institutions. Some of the studies have also been conducted on banking industry of Middle Eastern countries, such as, Kuwait (Darrat, 2002), Turkey (Isik & Hassan, 2002) and Jordan (Maghyreh, 2004). Similar studies have also been conducted in Asian countries like, Malaysia (Omar, 2006), India (Sathye, 2003) and China (Ariff & Can, 2008). The efficiency also became the subject matter of studies conducted in Australia by Sathye (2001) and Sturm and Williams (2004). However, there exist many studies that encompass cross-country analysis of efficiency such as the work done by Hassan, Lozano and Pastor (2000), Mostafa (2009), and Cheng (2008). But merely a few analyze the efficiency of IB such as the studies conducted by Hassan and Hussein (2003), Yudistira (2004) and Sufian (2006).

Hassan and Hussein (2003) examined the efficiency of Islamic banking industry in Sudan by analyzing 17 banks from the period of 1992 to 2000. A significant feature of this study is the estimation of a measure of bank's efficiency by employing DEA (Data Envelopment Analysis) approach. The findings of this study show that the inefficiency in IB of Sudan was due to the managerial related factors rather than the regulatory factors. Another study conducted to investigate the efficiency of 18 IBs from East Asia, Africa and Middle East for the period of 1997 to 2000 involves non-parametric measures to estimate and analyze efficiency of IBs (Yudistira, 2004). The results showed that IBs are somehow inefficient and also recommended that the difference in efficiencies across the sample data is mainly due to the country-specific factors. Hassan (2006) examined the efficiency of 43 IBs working in 21 countries from 1995 to 2001. He employed parametric analysis to measure the efficiency again involving DEA. The results of the study showed that the IBs are relatively less efficient as compared to their conventional counterparts in other parts of the world.

Sufian (2007) examined the efficiency of IBs in Malaysia from 2001 to 2005. His results show that scale inefficiency is dominated than pure technical inefficiency. It also shows that the local based IBs are more efficient than foreign based IBs. Mokhtar, Abdullah and Alhabshi, (2008) analyzes the efficiency of Malaysian IBs. His study considers pure IBs and those conventional banks that offer Islamic banking services in Malaysia. The study also uses DEA approach to measure technical efficiencies. The findings reveal that efficiency of IB has increased from 1997 to 2003 and performance of pure IBs is better than those of conventional banks that offer Islamic banking as one feature of their services.

Existing studies that attempt to explore the determinants of bank's efficiency in Islamic banks report a significant role of governance or managerial related factors. The literature is mostly silent over the role of particular governance mechanisms in improving efficiency. Existing studies are completely silent over the role of a few characteristics of SSB like qualification of board members etc. on strategic decisions of banks. This study is an attempt to

fill this gap in the literature by analyzing the relationship between characteristics of corporate as well as SSB and efficiency of Islamic banks.

### **Size of SSB and Bank's Efficiency**

Farag, Mallin, and Ow-Yong (2017) state that IBs with larger SSB have better financial performance and are more efficient. Hamza (2016) argues that SSBs with large size contain scholars with various experiences, skills and schools of thoughts that lead to a clear interpretation of Shari'ah complaint processes and products and resultantly can enhance performance. Abdullah, Percy and Stewart (2015) demonstrate that a large SSB can perform its functions and duties in a better manner as compared to smaller boards. One reason is that such boards have members with multiple ethical and religious perspectives as well as educational and industry experience that would help the board to address Shari'ah compliant governance. Mollah and Zaman (2015) and Matoussi and Grassa (2012) also report that there is a significant effect of size of SSB on IBs profitability and performance. In a nut shell, larger SSBs can improve efficiency in IBs. Thus, the first hypothesis is formulated as follows:

**H1:** There exists a positive relationship between size of SSB and efficiency of IBs.

### **Qualification of SSB Members and Bank's Efficiency**

Kakabadse et al. (2010) demonstrate that qualification of the members is an influencing factor of board's efficiency. Cheng (2008) and Haniffa and Cooke (2002) report a positive significant relationship between bank's performance and qualification of board. One reason is that the qualified members are seen as a strategic resource by the firms (Ingley & Walt, 2001). Musibah and Alfattani (2014) state that high level of SSB members' education leads to high profitability. SSBs with members having doctorate or some other higher education degree are thought to be better versed in Islamic finance and banking fields as compared to those SSBs where members lack academic qualification or degree in Shari'ah-related disciplines (Farook et al., 2011; Rahman & Bukair, 2013). Taking into account the aspect of qualification of SSB's members following two hypotheses are formulated:

**H2a:** There exists a positive relationship between the members having local and foreign degree in Islamic studies and efficiency of the bank.

**H2b:** There exists a positive relationship between the members having a *fiqh* degree and efficiency of the bank.

### **Size of the Corporate Board and Bank's Efficiency**

Naushad and Malik (2015) and Pathan and Fuff (2013) reveal that banks with small corporate boards have superior financial performance. Ladipo and Nestor (2012) indicate that the best performing banks have smaller and more 'mature' boards. Grove, Patelli, Victoravich, and Xu (2011) also demonstrate that larger corporate boards lead to reduced performance due to lack of efficient monitoring, communicational difficulties and greater agency problems. Lee and Chen (2011), Jackling and Johl (2009), Coleman and Biekpe (2007), Aljifri and Mustafa (2007), Haniffa and Hudaib (2006), Hermalin and Weisbach (2003), Yermack

(1996), Jensen (1993) and Lipton and Lorsch (1992) also agree to the existence of negative relationship between size of the corporate board and firm's performance. However, Forbes and Milliken (1999) suggest that larger boards have certain advantages like, sharing of more ideas, vast expertise and argumentation against illogical decisions of CEO.

This discussion leads us to believe that presence of large number of members is marked by delayed decisions and slower coordination. It makes communication difficult and allows CEO to gain control over the board, causing the agency issue and reducing board's performance. The following hypothesis is thus formulated:

**H3:** There exists a negative relationship between board size and bank's efficiency.

### **Board Independence and Bank's Efficiency**

Aggarwal et al. (2009), Dahya, Dimitrov, and McConell (2008), Andrés and Vallelado (2008), Cornett, Marcus, and Tehranian (2008) and Hossain, Prevost, and Rao (2001) argue that having more independent and non-executive members on the corporate board result in better performance through efficient monitoring and advisory functions offered by them. They report a positive relationship between board independence and firm's performance. However, Fu et al. (2012), Bhagat and Black, (2000, 2001) and Yermack (1996) report that there does not exist any relationship between independent directors and bank's efficiency. Since most of the studies that are conducted in developed and developed market report the existence of a positive relationship between the under discussion variables, the following hypothesis is formulated:

**H4:** There exists a positive relationship between board independence and the bank efficiency.

### **CEO Duality and Bank's Efficiency**

Opposing arguments exist regarding the impact of CEO holding two offices i.e., of CEO and chairman of the board (generally called CEO duality) on firms performance. Malkawi and Pillai (2013), Matari (2012), Wang, Lu, and Lin (2012), Chaghadari (2011), Grove (2011), Pathan (2009), Coleman and Biekpe (2007) and Larcker, Richardson, and Irem (2007) demonstrate a negative relationship between CEO duality and firm's performance. The agency theorists argue against CEO duality because it weakens the monitoring powers of the boards and it increases internal governance costs as well as risks (Lipton & Lorsch, 1992; Jensen, 1993). According to this view duality enables CEOs to use their power for their own personal outcomes, an effect that has recently been associated by some authors with entrenchment theory. However, Gill and Mathur (2011) and Peng, Zhang, and Li (2007) report a strong positive relationship between CEO duality and financial performance. These stewardship or organization theorists contend that joint leadership structures at top of corporate management can decrease information costs and improve stability, hence, enhance firms' performance and organizational efficiency (Anderson & Anthony, 1986). In a different perspective, multiple roles lead to difficulties in the execution of their respective roles thus contributing to chaos and mismanagement (Dedman & Lin, 2002). Moreover, Goodwin and Seow (2000) reiterate on the inherent cost with respect to duality related to the incom-

plete transfer of information and the confusion as to who is actual in charge of running the company. Hence, on the basis of above discussion, following hypothesis is formulated:

**H5:** There exists a negative relationship between CEO Duality and efficiency of the banks.

### **Audit Committee Independence and Bank's Efficiency**

DeZoort, Houston and Hermanson (2003) suggests that audit committee should be comprised of members having knowledge and experience of financial reporting, auditing and those who are certified public accountants instead of those board members who have no relevant experience. The audit committees having more independent members hold more experience in accounting and auditing that leads to better understanding of financial and legal matters of reporting system of the company. Menon and Williams (1994) argue that an audit committee comprising independent directors is more effective. In fact, the US Securities and Exchange Commission warns that an audit committee comprising inside directors is worse than no audit committee at all (Collier & Gregory, 1999). This discussion leads to the development of following hypothesis:

**H6:** There exists a positive relationship between Audit Committee Independence and bank efficiency.

## **METHODOLOGY**

The objective of this study is to explore the impact of characteristics of SSB as well as corporate boards on efficiency of banks. The econometric model employed in this study is as follows:

$$EFF_{i,t} = \beta_0 + \beta_1 SSBS_{i,t} + \beta_2 SSBQ1_{i,t} + \beta_3 SSBQ2_{i,t} + \beta_4 BS_{i,t} + \beta_5 BI_{i,t} + \beta_6 CEOD_{i,t} + \beta_7 ACI_{i,t} + \beta_8 FS_{i,t} + \beta_9 LEV_{i,t} + \beta_{10} PROF_{i,t} + \beta_{11} LIQ_{i,t} + \beta_{12} CAP_{i,t} + \mu_t$$

Where EFF stands for Efficiency of the firm, SSBS stands for size of SSB, SSBQ1 stands for the proportion of the board having local and foreign qualification in Islamic studies, SSBQ2 stands for the proportion of the board having qualification in *fiqh*, BS stands for board size, BI stands for board independence, CEOD stands for CEO duality, ACI stands for Audit Committee Independence, FS stands for Firm Size, LEV stands for Leverage, LIQ stands for Liquidity, PROF stands for Profitability and CAP stands for Capital to asset ratio of the firm. The proxies employed to measure each variable are as follows:

**TABLE 1**  
**List of variables and proxies employed for measurement**

Variable	Measure
Efficiency (EFF)	Technical Efficiency measured by performing Data Envelopment Analysis involving the inputs like total loans, total deposits and other earning assets and the outputs like total operating income and total operating expense)

**TABLE 1**  
**Continue..**

Variable	Measure
Board Size (BS)	Number of board members
Board Independence (BI)	Ratio of independent or non-executive director to total no of board members
CEO Duality (CEOD)	CEO and Chairman of the Board are same
Audit Committee Independence (ACI)	Ratio of independent directors on board to total number of audit committee members
SSB Size (SSBS)	Number of SSB members
SSB Qualification 1(SSBQ1)	Ratio of those Members of SSB having local and foreign qualification in Islamic studies to total number of SB members
SSB Qualification 2 (SSBQ2)	Ratio of those Members of SSB having qualification in <i>fiqh</i> to total number of supervisory board members
Firm Size (FS)	Log of total assets
Leverage(LEV)	Total debt to Total equity
Profitability (PROF)	Return on Assets
Liquidity (LIQ)	Total loans to Total assets
Capital to Asset Ratio (CAP)	Book value of capital to Total assets

A sample of 30 Islamic banks that are listed in respective countries in Asia is taken. The reason of collecting data from these banks is that most of the Islamic banks are operating as well as listed in Asian continent. Only those Islamic banks are made the part of sample whose data is available for the time period under study. All the variables are measured in US million dollars. Secondary data for the period from 2009 to 2016 is employed. The reason of considering this time period is that the Islamic banking industry has seen tremendous growth after 2008. Moreover, the standard setters also started to set forth governance related guidelines soon after 2008. Most of the data is extracted from annual reports, websites and other published reports of individual banks. The country wise distribution of the banks that are the part of the sample is as follows:

**TABLE 2**  
**Country wise distribution of sample banks**

Country	Number of Banks
Bahrain	4
Bangladesh	4
Malaysia	4
Jordan	2

**TABLE 2**  
**Continue..**

Country	Number of Banks
Pakistan	2
Qatar	2
UAE	6
Saudi Arabia	5
Yemen	1
Total	30

As stated, the objective of this study is to examine the relationship between the variables under study. Hence, multivariate regression analysis is employed as the estimation procedure. Hassan and Hussein (2003), Yudistira (2004), Sufian (2006) and Mokhtar (2008) are among the researchers who have also employed multivariate regression analysis as estimation technique. Since the data set contains observations over time for each cross section, the panel data regression analysis is employed. The significance of panel data regression analysis is inherent in its ability to offer reliable estimates in case of the panel nature of the data set.

## RESULTS AND DISCUSSION

The following Table shows the descriptive statistics of the variables used in this study:

**TABLE 3**  
**Descriptive statistics**

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
EFF	0.67	0.74	1.00	0.07	0.34	-0.35	1.47
ACI	0.76	1.00	1.00	0.00	0.31	-1.00	2.81
BI	0.65	0.80	1.00	0.00	0.31	-1.03	2.62
BS	9.67	9.00	21.0	4.00	3.35	1.17	4.57
CAP	0.20	0.13	0.94	0.04	0.20	2.14	6.63
CEOD	0.06	0.00	1.00	0.00	0.24	3.61	14.0
FS	15.1	15.3	17.4	11.6	1.40	-0.51	2.40
LEV	5.19	3.88	22.2	0.11	4.42	1.21	4.07
LIQ	0.31	0.20	1.50	0.00	0.32	1.08	4.11
ROA	0.23	0.01	4.68	-0.51	0.83	4.30	21.1
SSBQ1	0.36	0.30	1.00	0.00	0.27	0.31	2.20
SSBQ2	0.65	0.70	1.00	0.00	0.27	-0.32	2.19
SSBS	4.72	4.00	14.0	1.00	2.20	1.53	5.90

As evident from the above Table, the standard deviation of SSB size is 2.20 and SSB qualification in local/foreign degree and *fiqh* degree is 0.27. All variables are positively skewed except for Audit Committee Independence (ACI), Board Independence (BI), Firm

Size (FS), SSB qualification in *fiqh* degree (SSBQ2) and efficiency (EFF). The degree of skewness of ACI, BI, FS, SSBQ2 and EFF is lower than all other variables. The average number of SSB members on a board is 4.70. The minimum and maximum number of Shari'ah board members in a board is 1 and 14 respectively. The maximum value of SSB members that have *fiqh* and local/foreign degree is 1 and minimum is zero. The mean value of ACI is 76% meaning that a significant number of Islamic banks have independent audit committees, hence better audit quality. The mean value of BI is 75%. It means that most of the Islamic banks have independent boards. The mean of CEO duality (CEOD) is only 6%. It means that, in very small number of Islamic banks, CEO also plays the role of chairman of the board. The mean value of capital to asset ratio (CAP) is 0.20 which means that the considered Islamic banks have adequate capital. The mean of liquidity (LIQ) is 0.31 meaning that the Islamic banks have adequate ability to meet its financial obligations. The mean Return on Assets (ROA) is 0.23 which means that 23% of the earnings are generated from invested capital (assets). Comparing this value with the industry average shows that the Islamic banks are relatively stable with respect to their ability to convert assets into earnings.

Correlation analysis is performed to test the multicollinearity among the explanatory variables. Overall the cross correlation for explanatory variables are relatively small and there is no problem of multicollinearity. The correlation coefficients are reported in the Table below and shows the strength as well as direction of the association between two variables. The strength is assessed by following guidelines of Cohen (1988). BI has a significant linear relationship with ACI since the *p*-value is less than .01. The direction of the relationship is positive. The magnitude or strength of the association is approximately moderate, since the value of Pearson correlation coefficient is near to .05. BS has a significant linear relationship with ACI and BI. The direction of the relationship is negative with both ACI and BI. The magnitude of the association is again approximately moderate as the values of Pearson correlation coefficients are between .03 and .05. CAP has a significant linear relationship with ACI, BI and BS. The direction of this relationship is positive with BS and negative with ACI and BI. The magnitude or the strength of this association is weak with ACI and BI, however it is approximately moderate with BS. CEOD has a linear relationship with ACI, BI, BS and CAP. The direction of these relationships is negative and the magnitudes of association are very weak. FS has a significant linear relationship with ACI, BI, BS and CAP. The direction of the relationship is positive with ACI and BI. However, the direction of the relationship is negative with BS and CAP. The strength of the association with ACI, BI and BS is weak, however it is slightly strong with CAP. LEV has a significant linear relationship with ACI, BI, BS, CAP and FS. The direction of the relationship is positive with ACI, BI and FS. However the relationship is negative with BS and CAP. The strength of all these associations is approximately moderate. LIQ has a linear significant relationship with ACI, BI, BS and CAP. The direction of relationship is positive with BS and CAP, and negative with ACI and BI. The strength of all these associations is weak. ROA has a significant linear relationship with ACI, BI, BS, CAP, FS, LEV and LIQ. The direction of the relationship is positive with BS, CAP and LIQ and negative with ACI, BI, CEOD, FS

and LEV. The magnitude or strength of the association is weak with FS and approximately moderate with all other associated variables. SSBQ1 has a significant linear relationship with ACI, BI, FS and ROA, since the  $p$ -values are less than .01. The direction of the relationship is positive with ROA and negative with ACI, BI and FS. The magnitude or strength of the associations is weak, since all the values of Pearson correlation coefficient are either near to or less than .03. SSBQ2 has a significant linear relationship with ACI, BI, FS, ROA and SSBQ1. The direction of relationship is positive with ACI, BI and FS and negative with ROA and SSBQ1. The magnitude or strength of association is slightly strong with SSBQ1 and weak with all other associated variables. Last but not the least, SSBS has a significant linear relationship with ACI, BI, BS, LEV, ROA, SSBQ1 and SSBQ2. The direction of relationship is positive with BS, ROA and SSBQ1 and negative with ACI, BI, BS, LEV and SSBQ2. The magnitude or strength of the association is slightly strong with BS since the value of Pearson correlation coefficient is more than .05. The magnitude of the association is approximately moderate with ACI, BI, SSBQ1 and SSBQ2 since the values of Pearson correlation coefficient are between .03 and .05. However there exist a weak association with LEV and ROA.

**TABLE 4**  
**Correlation matrix**

	ACI	BI	BS	CAP	CEOD	FS	LEV	LIQ	ROA	SSBQ1	SSBQ2	SSBS
ACI	1											
BI	0.57**	1										
BS	-0.33**	-0.35**	1									
CAP	-0.25**	-0.25**	0.34**	1								
CEOD	-0.14*	-0.24**	-0.18**	-0.07	1							
FS	0.19**	0.23**	-0.18**	-0.63**	-0.04	1						
LEV	0.25**	0.29**	-0.33**	-0.49**	-0.05	0.32**	1					
LIQ	-0.32**	-0.32**	0.02**	0.31**	0.00	-0.08	-0.1	1				
ROA	-0.49**	-0.49**	0.35**	0.56**	-0.06	-0.47**	-0.24**	0.49**	1			
SSBQ1	-0.14*	-0.30**	0.12	0.11	-0.05	-0.22**	0.06	0.10	0.29**	1		
SSBQ2	0.14*	0.30**	-0.11	-0.11	0.05	0.22**	-0.07	-0.09	-0.29**	-0.69**	1	
SSBS	-0.37**	-0.38**	0.55**	0.06	-0.12	0.02	-0.13*	0.041	0.26**	0.37**	-0.37**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

After looking at the diagnostics this study proceeds to the multivariate regression analysis. Since the nature of the data is panel, panel regression analysis is performed. This analysis involves estimation of three distinct models i.e. common effect model, fixed effect model and random effect model. In order to verify that which of the models is appropriate to analyze the subject under discussion two tests are being employed i.e., the redundant fixed effect test and Hausman test. It is being found that this study can well appropriately be explained by the results of fixed effect model that are as follows:

**TABLE 5**  
**Fixed effect model**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.875	1.449	0.604	0.547
ACI	0.227	0.106	2.137	0.034
BI	-0.134	0.168	-0.798	0.426
BS	0.006	0.011	0.559	0.577
CAP	0.328	0.158	2.082	0.039
CEOD	-0.047	0.111	-0.418	0.676
FS	0.007	0.037	0.186	0.852
LEV	0.003	0.010	0.308	0.758
LIQ	-0.027	0.103	-0.261	0.795
ROA	-0.023	0.030	-0.775	0.440
SSBQ1	-0.384	1.254	-0.306	0.760
SSBQ2	-0.468	1.262	-0.371	0.711
SSBS	0.055	0.024	2.309	0.022
R-squared	0.718			
Adjusted R-squared	0.659			
F-statistic	12.273			
Prob(F-statistic)	0.000			

The above Table shows that the probability of F statistics is significant and so the model is a good fit. The values of  $R^2$  and adjusted  $R^2$  are also good meaning that a significant amount of change in the dependent variables can be explained by the considered independent variables. The results are also clear that the audit committee independence (ACI), capitalization ratio (CAP) and size of SSBS are significant since their  $p$ -values are less than .05 whereas Board independence (BI), CEO duality (CEOD), SSB qualification 1 (SSBQ1), SSB qualification 2 (SSBQ2), Board size (BS), leverage (LEV), firm size (FS) and return on assets (ROA) and liquidity (LIQ) are insignificant at five percent level of significance.

The results report a significant coefficient of size of SSB (SSBS). The first hypothesis of this study i.e., H1 is therefore accepted. These results are similar to that to Farag (2016) and Naji Nomran, Razali Haron and Rusni Hassan (2016) who also report a positive and significant relationship between the size of SSB and the bank's efficiency. These results can be explained in the light of agency theory. Larger the size of SSB, greater is the chance of having those members who possess more knowledge of Islamic principles and practices. These members play a significant role in reducing agency cost that in turn improves efficiency.

The results report insignificant coefficients of both the variables that represent foreign/local and *fiqh* qualification of members of SSB. So, the hypothesis H2a and H2b both are rejected. The results are somewhat opposite to that of Haniffa and Cooke (2002) and Cheng (2008) who report a positive significant relationship between the qualified Shari'ah board members and bank's performance. The reason of inexistence of the relationship between SSB qualification and efficiency in case of Asian listed banks is inherent in the well-defined

governance practices in these financial institutions. The stature of corporate governance in Islamic banks listed in Asia has improved much over time. This improved set of corporate governance mechanisms or stature of firm's governance limit any significant role to be played by qualification of SSB in improving efficiency.

The results report an insignificant coefficient of board size. The third hypothesis i.e. H3 is hence rejected. The results are similar to that of Dong (2016), who also report the inexistence of relationship between size of board and efficiency of banks. The results however, are different from that of Salim et al. (2016) and Pillai (2017). They both report the existence of negative relationship between board size and banks efficiency.

The coefficient of Board independence is also insignificant. The fourth hypothesis i.e., H4 is also rejected. These results are similar to that of Yermack (1996) and Bhagat and Black (2001) who also report an insignificant relationship between these variables. However Cornett et al. (2008), Dahya et al. (2008) and Aggarwal et al. (2009) found a negative impact of board independence on banks efficiency.

The coefficient of CEO duality is also insignificant. Hence the fifth hypothesis i.e., H5 is also rejected. The results are somewhat different from previous studies. For example, the studies of Dong (2016) and Chaghadari (2011) report a negative relationship between CEO duality and bank's efficiency. Another study by Zhang and Li (2007) report a significant positive relationship between efficiency of the banks and CEO duality.

This study reports a significant coefficient of audit committee independence. Thus, accepting the last hypothesis i.e., H6 and confirming that there is a significant positive relationship between audit committee independence and efficiency. The results are similar to that of DeZoort, (1998) who also report similar relationship. The results are explainable. If more independent members are made the part of the audit committee there is a high chance that these new members will bring along their experiences and knowledge thus contributing to increasing the board's expertise thus enhancing efficiency.

As far as the control variables are concerned, only capitalization is significant and all the other variables are insignificant. The insignificance of PROF is opposite to what is stated by Salim et al. (2016) who report a significant and positive relationship of PROF with technical efficiency. The results show an insignificant but positive relationship between leverage and bank performance. The leverage is thought to have a negative impact on banks' performance as stated by Pillai (2017). It is found that there exists a negative but insignificant relationship between bank's size and efficiency of Islamic banks in Asia. The studies that support this view are of Isik, (2002) and Hassan (2003). From the results presented above, it is clear that there is a negative and insignificant relationship between liquidity and bank's performance. Last but not the least, capitalization as measured by the ratio of book value of capital to total assets of the bank, reports a significant coefficient. Floros (2013) also states that higher the capital to asset ratio, greater would be the ability to absorb losses by banks and more efficient they look thus support the results of this study.

## CONCLUSION AND RECOMMENDATIONS

This study attempted to answer questions related to the existence of relationship between characteristics of Shari'ah supervisory as well as corporate boards and efficiency of Islamic banks. Using a sample of 30 Islamic listed Asian banks, this study examined the role of size and qualification of SSB, size and independence of corporate boards, existence of CEO duality and audit committee independence in determining efficiency of these banks. This study finds that size of SSB and audit committee independence is associated with efficiency of Islamic banks. These findings are in line with agency theory perspective thus put forward another empirical evidence to support this theory. Moreover, the measurement of efficiency i.e., technical efficiency by employing data envelopment analysis involving various inputs and outputs offers a relatively better measurement of banks' efficiency.

This study has implications for different users of financial statements. First, it offers an insight to investors both individual and institutional, as they can find efficient banks by looking at the characteristics of SSB as well as certain corporate governance mechanisms. Second, this study offers insight to regulators as they can develop such policies that can target those factors that improve efficiency in Islamic banks. Lastly, the scholars and researchers can also take advantage of this study by better understanding the role of factors that contribute towards improving efficiency in case of Islamic banks.

One of the limitations of this study is that it examines only those banks that are listed in Asian countries and are purely Islamic banks i.e., those banks are not considered who are commercial in nature and just offer a window of Islamic banking. Furthermore, this study is delimited to 2009 to 2016 because of the unavailability of data specifically regarding the qualification of Shari'ah board members. Hence there is a room for researchers to further study the topic under discussion by taking into account more banks and more Islamic financial institutions and help the users of this information in enhancing their knowledge, capability and competence and prepare themselves to face the future challenges and responsibilities.

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**APPENDIX****List of sample Islamic banks**

Country	Number of Banks
Bahrain	Bahrain Islamic Bank
Bahrain	ABC Islamic Bank (E.C.)
Bahrain	AL Salam Bank Bahrain
Bahrain	Khaleeji bank
Bangladesh	ICB Islamic Bank Limited
Bangladesh	Social Islami Bank Limited
Bangladesh	Al-Arafah Islamic Bank
Bangladesh	Islami Bank Bangladesh
Malaysia	Bank Islam Malaysia Berhad
Malaysia	Aliance Islamic bank malaysia
Malaysia	Rhb Islamic bank malaysia
Malaysia	Bank Rakayat Malaysia
Jordan	Islamic International Arab Bank
Jordan	Jordan Islamic Bank
Pakistan	BankIslami Pakistan Limited
Pakistan	Meezan Bank
Qatar	Qatar Islamic Bank
Qatar	Qatar International Islamic Bank
UAE	Emirates Islamic Bank
UAE	Sharja Islamic bank
UAE	Commercial Bank of Dubai
UAE	Albaraka bank
UAE	Abu Dhabi Islamic Bank
UAE	Al hilal Bank
Saudi Arabia	Seera bank
Saudi Arabia	Alinma Bank, Saudia
Saudi Arabia	Bank Al Jazaira, Saudi Arabia
Saudi Arabia	Albilad Islamic Bank, Saudi Arabia
Saudi Arabia	Bank Al khair (unicorn investment bank)
Yemen	Yemen Islamic bank

**Common effect model and random effect model**

Variable	Common Effect Model				Random Effect Model			
	Coefficient	Std. Error	<i>t</i> -Statistic	Prob.	Coefficient	Std. Error	<i>t</i> -Statistic	Prob.
C	4.693	1.53	3.068	0.002	1.757	1.331	1.32	0.188
ACI	-0.331	0.102	-3.232	0.001	-0.242	0.099	-2.442	0.015
BI	0.133	0.11	1.21	0.228	-0.026	0.128	-0.204	0.839
BS	-0.021	0.008	-2.66	0.008	-0.004	0.009	-0.425	0.671
CAP	0.316	0.146	2.166	0.031	0.362	0.147	2.462	0.015
CEOD	0.192	0.086	2.238	0.026	0.021	0.099	0.216	0.829
FS	-0.051	0.019	-2.718	0.007	-0.018	0.028	-0.63	0.529
LEV	-0.009	0.005	-1.803	0.073	0.001	0.007	0.095	0.925
LIQ	-0.194	0.074	-2.609	0.01	-0.07	0.09	-0.777	0.438
ROA	0.006	0.035	0.157	0.876	-0.025	0.029	-0.876	0.382
SSBQ1	-3.098	1.479	-2.094	0.037	-0.783	1.216	-0.644	0.52
SSBQ2	-3.053	1.482	-2.061	0.041	-0.827	1.223	-0.677	0.499
SSBS	0.047	0.012	3.985	0	0.038	0.017	2.233	0.027
<i>R</i> -squared				0.318				0.107
Adjusted <i>R</i> -squared				0.282				0.06
<i>F</i> -statistic				8.804				2.274
Prob( <i>F</i> -statistic)				0				0.01

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