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A contemporary survey of islamic banking literature $\stackrel{\star}{\sim}$

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1. Introduction

The global financial crisis has prompted policy makers and academics to search for an alternative medium of financial transactions to complement the traditional one. Islamic finance, with its Sharia-derived principles, is one such medium that has the potential to reduce the endemic risk exposure associated with financial transactions. The Islamic financial system abolishes interest, gambling, speculation, and complex derivatives, which are considered prime factors for exploitation within society (Abbasi et al., 1989; Ahmad and Hassan, 2007a; El-sheikh, 2008; Khan, 2010; Zaman, 2009). Similarly, the recent paradigm shift towards sustainable development goals provides another opportunity for

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ABSTRACT

This article reviews empirical studies on Islamic banking and concentrates on their main findings while highlighting future research directions. The earlier literature on Islamic banking built a foundation using normative judgment, descriptive analysis, theoretical development, and appraisal of country experiences. The paper discusses scholars' concerns that have led to a paradigm shift in the system and highlight practitioners' disquiet about recent practices. Subsequent research focuses on empirical investigations without extensive analytical and theoretical exploration in the area. Recent studies focus on the financial crisis, solvency, *maqasid*, disclosure and financial inclusion, and regulations. Even with the spillover effect on the Islamic banks after the crisis, a few pieces of evidence show that the system performs below its conventional counterpart. The paper discusses issues that are relevant to Islamic banking and identifies other avenues for future research.

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Islamic finance to grow so long as its original binding principles are intimately maintained (Ahmed et al., 2015; World Bank and Islamic Development Bank Group, 2017). These assertions are consistent with the recent link between the Islamic banking view and the sustainability paradigms (institutional and welfarist) related to the Ismaili and Chapra models of Islamic banking (Aliyu et al., 2017a; Dusuki, 2008). Therefore, the foundational theory of modern Islamic banking and finance is associated with social prosperity through the efficient allocation of capital resources and through financial decisions geared towards achieving growth and development (Khan, 1986). Nonetheless, it is not clear whether studies in Islamic banking and finance are providing avenues for strengthening the institutions or suggesting new insights that will uphold the system. As earlier posited, Islamic economic and finance theories are still underdeveloped (Siddiqi, 2006). Taking a similar view, Ibrahim (2015) suggests that Islamic financial studies have to focus and reflect the ideal foundational theories of Islamic finance, whereas other studies (Khan, 1991; Kamla et al., 2008; Berg et al., 2016) proposes the use of real-life data to validate the foundational theories. This cannot be achieved without an intensive review of the previous and existing empirical studies in the area and providing highlights, critiques, suggestions, and recommendations for the way forward. Meanwhile, existing studies focus on the evaluation of the Islamic banking sector with the intent to provide practical



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insights into their current practice, particularly on the convergence towards a resemblance to the conventional finance and their divergence from the ideal theoretical foundations. The earlier claims (Khan, 1986) characterizing the Islamic financial system as a superior one that operates more efficiently and with greater stability, thereby generating more effective policies than its conventional counterparts, have been empirically proven (Darrat, 1988). The earlier model was tested based on the certainty postulation of a 1-year period (Bashir, 1983), Within a short time, another study (Hassan and Aldavel, 1998) confirmed the earlier assertions of Darrat (1988) with an extended panel analysis of 15 countries. Thus the relevance and validity of these findings must be further evaluated by incorporating more recent economic, social, and environmental changes. Despite the previous critiques of the Islamic economic and financial system (Kuran, 1983, 1995), the general response in the intervening decade has provided practical and theoretical evidence of the viability of the system (Ebrahim and Safadi, 1995). Subsequent empirical studies also support the viability of Islamic finance (Bashir and Darrat, 1992; Bashir et al., 1993; Shaukat and Alhabshi, 2015). In a nutshell, Khan (1991) claimed that Islamic economics and financial institutions have the potential to provide solutions to socioeconomic problems that have failed to be solved through the conventional paradigms of neoclassical economics. Although some scholars argued that the theoretical aspirations of Islamic economics and finance are not realized in practice, and fail to fulfill the required needs of the (maqasid) higher objective of Sharia (Asutay, 2008; Zaman and Asutay, 2009). Therefore, a review of the existing studies that link the major components of the Islamic banking system may pave the way towards a clear understanding of whether the institution at this present time concurs with its earlier claims or not.

A recent empirical review of Islamic banking and finance (Abedifar et al., 2015) focused on studies between 1999 and 2014, excluding earlier findings that supported the conceptual paradigm of the first generation scholars. Overlooking the link between early and recent studies can lead to a flawed understanding and preventing us from obtaining a clear picture of the entire system. For instance, Ahmed (1989) argued that a single period model (Bashir, 1983) that was used to justify the earlier claim might not be robust enough to validate multiple time studies. Thus an intensive review of a particular segment of finance is required, rather than combining two or more areas without a thorough examination of the essential issues therein. Therefore, this study covers studies between 1983 and 2017¹ to indicate the general trend(s) of the major studies and to include other issues that are neglected in other previous surveys. Some early empirical studies on Islamic finance and banking were published in the 1980s, including written by the staff of the International Monetary Fund (IMF). Thus, pursuing subsequent studies in this path is recommended (Doak, 1988). The contribution of empirical studies on Islamic finance to the literature has been growing geometrically in this millennium, but the consistency of these studies with the earliest works are sometimes not clear. Earlier claims may not hold at present due to human behavioral changes, time and the complexity of the modern financial system. The risk-sharing paradigm was discussed in the 1980s and several researchers have concluded that the system is able to absorb financial shock (Khan, 1986; Darrat, 1988). However, more recent findings are in conflict with these, and further studies are needed so that policy-makers and non-professional readers can understand the trends in the literature to help them make important decisions. For instance, the studies appearing quickly after the 2007-2009 financial crisis supported the resilience of Islamic finance (Hassan and Dridi, 2011), whereas a few years after, Algahtani et al. (2016) rejected these earlier claims. Thus, the empirical findings of Islamic banking studies become bewildering when taken at its surface value without an in-depth review that considers the location, methods, periods and the possible implications that led to certain conclusion.

Interest in Islamic finance and banking has been soaring higher over recent years and has penetrated not only developing and emerging economies, but other parts of the world have also been developing an interest in it. Some countries are reforming their regulatory framework to accommodate the system. Therefore, this review is timely, especially as there has been a paradigm shift in the modern Islamic banking contracts towards incorporating products resembling those of conventional banks, which has other implications for their financial stability. The paradigm shift from the underpinning theory of profit and loss to debt-based contracts might lead to other disadvantages, refuting the financial stability of the Islamic system and undermining sustainable development agenda (World Bank and Islamic Development Bank Group, 2017). Recently, the IMF highlighted that the growth and complexity of the Islamic banks has become a topic of concern, particularly regarding their financial stability, new diverse risk, and regulations (Shabsigh et al., 2017). Therefore, reviewing the empirical findings of the Islamic banks' performances with a closer view of their solvency and risk, soundness and stability, efficiency, and regulations would account for the current status of the system and reveal other implicit issues for policy recommendations and directions for future research.

This paper aims to review the empirical literature on Islamic banking and present other directions for future studies. Our focus is to provide insights that will guide policy makers, researchers, students, and other readers to understand the Islamic banking activities and thus guiding their future decisions. The survey does not cover all the empirical research in the area but rather explores most of the literature published in the high-impact journals. The paper differs from previous survey studies that have focused on specific issues of Islamic finance and banking such as financial stability (Belouafi et al., 2015; Odeduntan and Adewale, 2015), the rate of return risk (Zainol and Kassim, 2012), its role in the new world order (Moisseron et al., 2015), the bank-growth nexus (Elgalfy and Khiyar, 2012), selection criteria (Mahfooz and Ahmed, 2014; Nawi et al., 2013), interest rates (Bellalah and Ellouz, 2004), reviews of theory and practice (Ahmed, 1989; Tahir, 2007; Shaikh, 1997; Siddiqi, 2006, 1978; Ariff, 1988), comparative assessments versus conventional banks (Zaher and Hassan, 2001), the Malaysian context (Musaeva et al., 2014), recent empirical studies (Abedifar et al., 2015; Alam and Rizvi, 2017; Narayan and Phan, 2017), equities (Masih et al., 2016), and sustainability (Aliyu et al., 2017a). However, not all of these studies have been able to combine the themes and sub-themes, that range from theoretical to practical issues with considerations of the social impact of maqasid Sharia, financial inclusion and disclosure, and the Islamic banking regulations, despite their vital role in the Islamic financial system. As such, other suggestions that would close the gap between theoretical aspirations and practice are essential for the current Islamic banking regime (World Bank and Islamic Development Bank Group, 2017). Therefore, this present study intends to fill this gap through linking recent research with earlier Islamic finance and banking postulations, which range from critical assessments, suggestions for prospect studies, and policy formulations. The main goal of this paper is to contribute by providing a balanced consideration that will highlight the gap between theory and practice and thus strengthen the system to support not only the industrial sector but also social well-being in general.

The remaining sections discuss thematic issues touching on Islamic banking practice. The next section presents Islamic banking principles, the current status, theoretical paradigms, balance sheet and practice. Section three compares empirical studies of Islamic and conventional banks. This section reviews their institutional strength based on soundness, financial crises, performance, and insolvency and risk. The efficiency of Islamic banks is also discussed in Section 4, and Sections 5 review empirical studies on the Islamic banks' *maqasid*, financial disclosure, and inclusion. Studies on the Islamic banks' regulations are explored in Section 6, whereas the last section concludes the article with suggestions for future research.

2. Islamic banking

Islamic banking practices emerged from Sharia principles that are concomitant to certain ideological guidelines. The growth of the institution can be seen from its current status, even though its earlier development up to the present may account for the trends in the system. The system has paradigm in which it operates. The Islamic banking paradigm was first developed based on rewards and risk sharing (i.e. equity based) with the aim of promoting social wellbeing. Nonetheless, a paradigm shift within the system has drawn the attention of scholars and policy-makers and led to inconclusive debates. Therefore, the recent growth and complexity of the system's practices have stimulated researchers to investigate its empirical differences from its conventional counterpart. Empirical studies cover the performance spectrum that encompasses financial crises and soundness, solvency and risk, and efficiency. The first-generation scholars emphasized the *magasid* realization that can be supported through inclusiveness and disclosure. However, business complexity and the struggle for survival tend to drive a divergence from the original concepts that established the system. Therefore, the need for regulations and functional regulators has become necessary for establishing prudential practices.

2.1. Islamic banking principles

In principle, Islamic banking and financial institutions are based on Sharia guidelines that abolish interest and other prohibited activities that link with transactions such as gambling, speculations, excessive uncertainty (gharar), and illegitimate transactions that are related to pornography, tobacco, short-selling, alcohol, and any other activities considered to be detrimental to society (Khan, 2010; Ariff, 1988; Schoon, 2008; Lewis, 2008). Instead of these, the system condemns exploitation and focuses on real economic activities through rewards and risk sharing of businesses outcomes between/among the parties involved. However, researchers claim the system focuses on Islamic financial transactions that are more complex and difficult (Cobham, 1992; Sundararajan and Errico, 2002) than conventional transactions, and are mostly asset-based rather than debt-based. Similarly, reward and risk-sharing is the cardinal pillar that makes the system different from interest-based systems and claims to be an efficient means of social justice and wealth distribution. It also entails a stable financial, economic system (Khan, 1986; Crane and Leatham, 1993; Siddigi, 2006; Schoon, 2008). At the same time, Islamic banks participate in sale and lease-based (Ijara) contracts (which must be backed by assets), benevolence finance (Qard hasan), and pooling expertise (Aliyu, 2014; Hussain et al., 2015). These modes of transactions tend to improve entrepreneurial growth, which, in turn, has a multiplier effect on social prosperity. Therefore, as part of the principles of Islamic finance, ownership rights are paramount, and the sale of unpossessed property is not allowed, as is the case in short-sale practices (Hussain et al., 2015). In a nutshell, Islamic banks are expected to have long-term institutional sustenance and prosperity that will improve social well-being and the environment (Aliyu et al., 2017a).

In the early 1980s, Karsten (1982) stated that future Islamic banking prospects could not be ascertained with reliability because of insufficient data. Therefore, during that period, Islamic banking and financial studies were characterized by a descriptive nature, development of theoretical frameworks, and evaluations of country experiences (Ahmed, 1989). Subsequently, the trend has changed towards more empirical studies undertaken in the interests of academicians and policy-makers over the last three and a half decades, as shown in the subsequent Tables 1–7. The literature on Islamic banking shows how the system operates within the diverse utilization of real asset portfolios that enhance economic growth through entrepreneurial development (Khan, 1991; Chapra, 1992, 2000). Inclusiveness is one of the prominent contributions that Islamic banks are expected to deliver. Therefore, despite the motivational goal for banks to realize revenue for institutional survival, they are also supposed to extend capital allocation and financial decisions to the productive sector of the economy. In this regard, the actual nature of Islamic banking practices will not be apparent without an in-depth empirical review of the existing literature that is built on real-life data.

2.2. Current status of islamic banking industry

A clear understanding of the current status of Islamic banks cannot be appreciated without highlighting the historical developments that support the system. The history of Islamic banking practices began in 1963 with the Mit Ghamr local savings bank of Egypt (World Bank and Islamic Development Bank Group, 2017). About the same time as the Mit Ghamr bank, another Islamic investment company was established in Malaysia, Lembaga Tabung Hajj (Pilgrim Fund Board) received deposits and provided services for operating pilgrimages. Consequently, the Tabung Hajj claimed to be the largest investment fund in Malaysia that aimed to empower the Malaysian people through various investments in Islamic finance, property development, construction, information technology, oil and gas, and hospitality². Dusuki (2012) presented a list of the Islamic banks that emerged in the 1970s and beyond particularly in countries like Egypt, Saudi Arabia, the United Arab Emirates (UAE), Sudan, Bahrain, the Philippines, and Jordan.³ The 1970s regarded as the period when Islamic banks began to realize great achievements. During this time, the Egyptian government used the Naseer Bank to collect and distribute zakat, allocate benevolent loans to students (as scholarships) and to people in abject poverty, and provide micro-credit based on profit and risk sharing principles (Iqbal and Molyneux, 2005; Warde, 2000). Subsequently, alongside the formation of various commercial banks during this period, the Islamic Development Banks (IDB) group was established in 1975, and a conference on Islamic economics was held in Makkah a year later, the first of its kind across the globe. The IDB aims to foster economic growth and social well-being of its member countries by utilizing Sharia-based financing.

In the 1980s, countries such as Pakistan, Sudan, and Iran declared their intention to transform their financial system to accommodate the Islamic financial system (Omar et al., 2013). The establishment of the Islamic Research and Training Institute of the IDB in 1981 stands as another development within Islamic banking and finance towards capacity building and research. Within the 1980s, Islamic banks were launched in countries such as Malaysia, Bangladesh, Qatar, Mauritania, Saudi Arabia, and Luxembourg; the latter indicated the acceptability of the system to another region of the world. The first batch of papers published by the IMF on Islamic banking and finance was in the 1980s (Haque and Mirakhor, 1986; Karsten, 1982; Khan, 1986); three decades later, the IMF agreed to officially recognize "[the] core principles of Islamic financial regulation for banking" which it hopes to ratify as part of their standards and codes initiatives⁴. The first Islamic standard-setter (the Accounting and Auditing Organization for Islamic Financial Institutions, AAOIFI) was founded in 1991, and the Islamic Financial Service Board (IFSB) and the International Islamic Financial Market

Table 1

Islamic banking: Principles and Practice.

Author(s)	Period	Sample/country(ies)	Methodology	Main Findings
Bashir (1983)	Single period and later simulations	Faisal Islamic Bank of Sudan	A normative hypotheti- cal/theoretical model of linear functional form was developed	The result reveals return maximization, which is expected with the single period estimation.
Khan (1986)			Fixed and flexible price model	PLS meets the fundamental aims of Islamic economics, and the Islamic economic and financial system is promising for adjusting financial shocks to a normal equilibrium position and is more suitable during a crisis.
Darrat (1988)	1960–1984	Tunisia	Regression analysis	The interest-free monetary system is more efficient and stable than the traditional system especially during a crisis and excessive bank failure.
Hassan and Aldayel (1998)	1970–1987	Ten countries	Regression Analysis	The variation of the velocity of money for interest-free banking is lower than that of the than interest-based system, which shows the relatively higher stability of the former.
Chong and Liu (2009)	April 1995–April 2004, monthly	Malaysia	bivariate Granger causality test & cointegration tests	In practice, IBs and CBs are not different. Few IBs practicing a PLS system, but closely pegged their deposit rate to that of CBs. The IBs' growth does not depend on the advantage of PLS practices, but reacts to worldwide Islamic resurgence.
Kasri and Kassim (2009)	March 2000–August 2007	Indonesia	VAR and IRF	CBs' interest rate is influencing Islamic banks deposit rate.
(2010)	January 1994–May 2007	Malaysia	VDC	IBs rate for investment and deposit is influencing monetary transmission of the country.
Zainol and Kassim (2010)	Jan. 1997–Oct.2008	Malaysia	Cointegration analysis, Granger causality, IRF & VDC	Long-run co-movements exist between the IBs' rate of return and the interest rate. An interest rate increase stimulates the IBs' rate to increase as well in order to maintain their liquidity position
Kasri (2010)	2000-2007	Indonesia	VAR, IRF and VDC	The growth of the Indonesian IBs is affected by the dynamic influence of rate of return to mudharaba deposits and the interest rate.
Abedifar et al. (2013)	1999–2009	553 banks in 24 countries	Regression (random effect)	Small IBs have lower credit risk and insolvency risk than CBs. Moreover, IBs charge rents on their customers and the loan quality of IBs is less responsive to interest rates than that of CBs.
Beck et al. (2013)	1995–2009	510 banks across 22 countries, 88 of which are IBs	Regression (fixed effect)	IBs are less cost-effective with a higher intermediation ratio, asset quality, and capitalization, even during a crisis. The higher stock performance of listed IBs during the crisis is also caused by their higher capitalization and asset quality.
Bourkhis and Nabi (2013)	-	34 IBs & 34 from6 countries	Regression (random effect)	There was no difference in soundness between the two types of banks during the crisis, whereas IBs outperformed in term of return on assets. This finding diverge from the theoretical foundation of IBs, which explained the ability of the system to be sound even during the crisis.
Ergeç and Arslan (2013)	2005:12–2010:07	Turkey	Vector error correction	IBs' activities in Turkey are influenced by the interest rate, which contradicts its foundational theory.
Imam and Kpodar (2013)	1992–2006	117 countries	Poisson regression	The Muslim population and per capita income of a country practicing Islamic banking rises with the growth of the institution. The interest rate has a negative impact. IBs is complementary, not a substitute for CBs.
Ergec and Kaytanci (2014) Tai (2014)	2002–2010 2003–2011	Turkey 58 GCC CBs and IBs	Granger Causality Regression Analysis	CBs deposit rate granger causal that of IBs. CBs are profitable, liquid, and solvent at the first phase of the study periods, while IBs took over these performance indicators at a later period.
Jawadi et al. (2015b)	2006–2013	10 IBs and 10 CBs (major)	Panel regression (random) and causality test	No significant causality effect exists between IBs and CBs, which indicates that IBs are not superior to CBs.
Jawadi et al. (2015a)	April 2006–February 2013	10 IBs and 10 CBs (major)	Panel regression analysis (fixed effect); Panel VAR model & causality test	IBs and CBs differ only on financial risk, weak interactions exist between IBs and CBs, and panel causality tests reject the hypothesis from IBs to CBs.

Table 1 (Continued)

Author(s)	Period	Sample/country(ies)	Methodology	Main Findings
Asbeig and Kassim (2015)	2000–2011	Malaysia, 11 IBs and 13 CBs	Regression (fixed effect)	Monetary policy changes do not have an impact on the types of bank financing. Meanwhile, size and liquidity influence the banks and capitalization only for IBs.
Yusof et al. (2015)	1998–2010	18 IBs of the GCC	Cointegration analysis, and VDC	The PLS rate of the GCC countries is not mimicking the conventional rate.
Charap and Cevik (2015)	January 1997–August 2010	Turkey and Malaysia	Cointegration analysis, IRF, and Granger causality test	The PLS rate of IBs mimics the conventional deposit rate during the period of the study.
Akhatova et al. (2016)	2000:1-2013:4	Malaysia	Structural vector autoregression	IBs' and CBs' financing respond to monetary policy shocks in Malaysia, although financing from IBs responds more quickly than the CBs' credit.
Aliyu and Yusof (2016)	1995–2013	Iran, Jordan, Kuwait, Saudi Arabia, United Arab Emirate, Sudan, and Tunisia	Panel data analysis; Fixed effect model	IBs are suggested to improve on cost efficient strategy for better performance.
Sorwar et al. (2016)	2000–2013	IBs, and CBs-65 each	Value at risk Var, and expected short fall	IBs are less risky compared to CBs, and the capital structure the former is different with the latter types of banks.
Pappas et al. (2016)	1995–2010	421 banks in 20 Middle Eastern and Far Eastern countries	Cox proportional hazard model; logit and panel regression	Bs have lower failure risk than CBs. Therefore, early warning implementations for bank failure have to consider the distinct difference between the bank types.
Sukmana and Ibrahim (2017)	January 1999–November 2016	Malaysia	Non-linear ARDL	IBs are not pegging their investment rate on CBs deposit rate
Aliyu et al. (2017b)	1992–2013	Nigeria	OLS regression analysis	Islamic moral transaction will influence sustainable banking business and enhance social-wellbeing through financial outreach.
Mahdi and Abbes (2017)	2005–2013	88 CBs and 42 IBs	Regression analysis	Increase in liquidity tends to influence banks to have a riskier portfolio. Meanwhile, the recent financial crisis affects the liquidity, risk, and capital of both JBs and CBs
Ibrahim and Rizvi (2017)	2000-2014	45 IBs in 13 countries	GMM estimator	The non-linear effect of the size of IBs revealed that the largest banks are stable, at least after a certain threshold. Capital regulation increases stability.

IB, Islamic bank; CB, conventional bank; PLS, profit and loss sharing; GMM, generalized method of moment (GMM); IRF, impulse response function; VDC, variance decomposition; VAR, vector autoregressive; ARDL autoregressive distributed lag.

(IIFM) were inaugurated in 2002.⁵ The standard-setters develop, review, and adopt international standards after rigorous reviews based on Sharia law. The period between 1990 and 2000 is considered to be an era that manifested a new segment of Islamic finance other than banking business, which included the penetration of capital market products, advance treasury services, products innovations, and asset management (Dusuki, 2012).

Islamic banks hold 80% of the entire global Islamic financial assets (Aliyu et al., 2017a; Hussain et al., 2015; Kammer et al., 2015). The Islamic banks' liquidity is high in the Gulf Corporation Council-GCC region and Iran, followed by Africa because of the existence of Sudan, which is dominated by Islamic banking practice (World Bank and Islamic Development Bank Group, 2017). Similarly, Imam and Kpodar (2013, 2016) claim that the growth of the Islamic banks is consistently increasing with the economic development of the practicing countries. It is acknowledged that sales and leasebased contracts dominate the Islamic banks' transactions, with up to 70% contracts being *murabahah* (mark-up sale/sale at margin) and *ijarah* (leasing/rent), whereas profit and loss sharing (PLS) contracts account for only 5% (Shabsigh et al., 2017). However, the fact that Islamic finance industry is far from ideal risk-sharing finance (Akin et al., 2016), the influence and acceptability of Islamic products in the contemporary financial market cannot be neglected. The acceptability of Islamic finance has penetrated not only the Middle East and Asian countries, but also the rest of the world. It is worth noting that Islamic banks have lower distress records than conventional banks (Pappas et al., 2016): the banks remain profitable and liquid even with a high level of nonperforming loans in some countries (Shabsigh et al., 2017). Therefore, the current status of Islamic banks is characterized as follows:

- a The earlier Islamic commercial banks were more socially oriented than profit motivated; now the industry is moving towards the reverse.
- b The penetration and acceptance of the Islamic banking system go beyond the Muslim majority countries.
- c Fostering economic growth and social well-being is the aim of the multinational Islamic financial institutions (like the IDB).
- d The internationalization of Islamic banking and financial standards have been recognized by the IMF.
- e Islamic financial standards are still undergoing modifications, such as development and harmonization with other international standards.
- f The practice of the present Islamic banks is skewed towards sales and lease-based finance rather than rewards and risk sharing contracts.

2.3. Paradigms and practices of islamic banking

The genesis of Islamic banking paradigm relied on compliance with Sharia regulations, which was the primary rationale behind the divergence from the interest-based system. Subsequently, normative judgments and analytical postulations have suggested the feasibility of the system. The founding scholars constructed a PLS system with the hope of providing an alternative to a fixed rate of return on loans (Siddique and Iqbal, 2016). Alongside this, Alam Choudhury and Hussain (2005) foresaw the Islamic banking functions extending beyond providing funds to clients; they now encompass providing support to national development schemes that link finance, the economy, and society. However, connecting investments with the economy and society implicitly requires the institutions to operate within the prudential performance in terms

Table 2

Performance of Islamic banks.

Author(s)	Period	Sample/country(ies)	Methodology	Main Findings
Rosly et al. (2003)	1996-1999	Malaysia (24 banks)	Descriptive and <i>t</i> -test	Malaysian IBs recorded a higher rate of return with
Dusuki (2008)	-	Questionnaires of 1500 on various stakeholders	Descriptive & Kruskal–Wallis tests	low efficiency despite utilizing their overheads. The respondents perceived IBs to promote Islamic values and support the social objectives through poverty alleviation and sustainable development schemes.
Olson and Zoubi (2008)	2000-2005	GCC region	Logit, neural network, and k-means nearest neighbor classification models	The CAMEL rating is a good discriminating indicator between the two types of banks IBs are more profitable and less efficient than CBs
Čihák and Hesse (2010)	1993-2004	20 OIC Countries	Panel regression models	Small (large) IBs are more (less) stable than their conventional counterparts of the same size.
Masood et al. (2011)	1998–2008.	30 IBs in different countries	Z-score & regression analysis	Small IBs are more stable than large banks, whereas large banks have higher income diversity than small banks. Similarly, the stability score increases with the size of the large banks and decreases with that of small banks
Yahya et al. (2012)	2006-2008	Malaysia (29 banks) IBs & CBs	DEA	No significant level of efficiency exists between IBs and CBs.
Abedifar et al. (2013)	1999–2009	553 banks in 24 countries	Regression (random effect)	Small IBs have lower credit risk and insolvency risk than CBs. Moreover, IBs charge rents on their customers and the loan quality of IBs is less responsive to interest rates than that of CBs.
Abdul-Rahman and Bukair (2013)	2008	53 IBs of GCC	Content analysis, multiple regression and descriptive statistics	SSB has a positive influence on the IBs' disclosure.
Beck et al. (2013)	1995–2009	510 banks across 22 countries, 88 of which are IBs	Regression (fixed effect)	IBs are less cost-effective with a higher intermediation ratio, asset quality, and capitalization, even during a crisis. The higher stock performance of listed IBs during the crisis is also caused by their higher capitalization and asset quality.
Bourkhis and Nabi (2013)	_	34 IBs & 34 from6 countries	Regression (random effect)	There was no difference in soundness between the two types of banks during the crisis, whereas IBs outperformed in term of return on assets. This finding diverge from the theoretical foundation of IBs, which explained the ability of the system to be sound even during the crisis.
Johnes et al. (2014)	2004–2009	252 banks (207 CBs and 45 IBs) across 18 countries	DEA and meta-frontier analysis	IBs have higher gross and net efficiency with a lower type of efficiency than CBs within the banking environment and attributes. The low efficiency of IBs is caused by a lack of product standardization, whereas high net efficiency reflects their managerial canability
Mobarek and Kalonov (2014)	2004–2009	18 OIC countries, 307 CBs and 101 lBs	DEA, SFA & regression	DEA & SFA reveals that CBs are more efficient than IBs, whereas the Z-score indicates the high stability of IBs over CBs. The dominance of IBs' stability declined in Bahrain, Kuwait, and UAE.
Sun et al. (2014)	1997–2010	65 CBs and 36 IBs	GLS with fixed effects	The two types of banks have negative short-term gaps and positive long-term gaps. CBs have higher quality management of assets and liabilities than IBs. Th low margin for the two types of banks indicates a stable
Mallin et al. (2014)	2010-2011	90 IBs of 13 countries	OLS, Three stage least square	IBs engages in social commitments, committed to Islamic financial standards on disclosure and fail towards corporate social responsibility (CSR). There is a significant relationship between performance, SSB, and CSR.
Daly and Frikha (2015)	2005–2009	Bahrain (6 IBs & 6CBs)	DEA and regression (pool OLS)	Despite the negative implications of government interventions on performance of CBs, the IBs' size increases with an increase in customer deposits.
Miah and Sharmeen (2015)	2001–2011	Bangladesh, 20 CBs and 7 IBs	SFA & SUR	CBs are more cost-efficient than IBs. Meanwhile, a bidirectional relationship is found between capital to efficiency, negatively and positively, respectively, for IBs and CBs, alongside a positive bidirectional relationship between efficiency and risk.
Bukair and Abdul Rahman (2015)	2008–2011	40 IBs in of GCC	Regression analysis (GLS)	The size and composition of the board have a negative effect on IBs' performance, and chairman independence has a positive impact. Meanwhile, size influences overall bank performance positively but negatively in the case of leverage.
Khediri et al. (2015)	2003–2010	44 CBs and 18 lBs in 5 GCC nations	Linear discriminant analysis, logistic regression, Tree of classification and neural network	IBs have better profitability, leverage, liquid, and capital and are less involved in off-balance sheet activities and credit risk than CBs. The financial crisis affected the profitability of the two banks types negatively.

Table 2 (Continued)

Author(s)	Period	Sample/country(ies)	Methodology	Main Findings
Mirza et al. (2015)	2005–2013	Pakistan	Regression (fixed effect)	IBs have better asset quality and financial stability than CBs despite certain similarities between the two business models. However, despite the financial fragility of Non-Banking Financial Institutions, this demonstrates higher fee-based income and non-deposit funding than CBs.
Mollah and Zaman (2015)	2005–2011	25 countries, 172 banks (86 IBs and 86 CBs)	GMM, GLS (random effect model)	The performance of IBs improved with the supervisory role of the Sharia board and declined when the board assumed an advisory role. Likewise, board structure and CEO power have a negative effect on IBs' performance.
Alqahtani et al. (2016)	1998–2012	101 banks from 6 GCC states	Regression (fixed effect)	The profitability, capitalization, and liquidity of IBs outperformed that of CBs in the earlier period of the financial crisis in the GCC and became worse (except for liquidity) at the later stage because of the economic downturn.
Ali and Azmi (2016)	2005–2013	Malaysia (16 IBs & 24 CBs)	GMM	GMM estimation reveals that the religiosity of the board members has no effect on the IBs' performance. Therefore, non-Muslim as well as Muslim board directors can run IBs equally well.
Aliyu and Yusof (2016)	1995–2013	Iran, Jordan, Kuwait, Saudi Arabia, United Arab Emirate, Sudan, and Tunisia.	Panel regression model	IBs' performance is determined by their capitalization, cost efficiency, operating incomes and gains, and macroeconomic indicators of GDP, exchange rate, and inflation.
Hardianto and Wulandari (2016)	2011–2013, quarterly	Indonesia, 39 banks (31 CBs and 8 IBs),	Stochastic frontier approach-SFA and panel data regression	IBs have a high intermediation ratio, high fee income, and low efficiency. Intermediation and fee income increases as the bank increases its size, whibutle intermediation reduces when inefficiencies and non-loan earning assets increases.
Mohanty et al. (2016)	1999–2010	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE, 43 banks	Heteroskedastic stochastic frontier models	IBs and CBs are not different regarding cost and profit efficiencies measures after controlling some variables; IBs are more volatile than CBs. Country-specific variables influence cost and profit efficiency.
Rashid and Jabeen (2016)	2006–2012	Pakistan, 22 banks (5 IBs and 17 CBs)	GLS regression	Advancements in overall management practices and new standards for operational efficiency and financial risk are integral to enhancing the performance of banks. The operating efficiency, reserves, and overheads are significant determinants of CBs' performance, whereas operating efficiency, deposits, and market concentration explains the performance of IBs'. The impact of GDP and the lending interest rate on performance is negative for both types of banks. Bank managers should focus on controlling overheads and operating costs to improve performance.
Sun et al. (2017)	1997–2010	66 CBs and 39 IBs operating in 15 OIC countries	GMM	The margin of the two types of banks differs significantly, but they all compete traditionally (borrowing & lending) to meet funding demands, which makes them not different from each other.
Wanke et al. (2016b)	2010–2014	114 IBs from 24 countries	TOPSIS & neural networks	High costs reduce the efficiency of IBs, although the cost of cash reserves and labor has a positive impact on efficiency. Similarly, cultural traditions influence efficiency positively.
Soedarmono et al. (2017)	1997–2012	146 lBs of 29 countries	GMM estimation	The procyclicality of loan loss provision of IBs behaves as opposite side with economic growth (i.e., decline as the growth is high). The effect can be offset by the bank's higher capitalization.
Doumpos et al. (2017)	2000–2011	22 countries (101 IBs and 347 CBs), and 52 IB windows in 21 countries	Bank overall financial strength index, random effect model	The banks' financial strength overall is not different between CBs and IBs. IBs performed better in Senegal and the MENA region and CBs outperformed their counterparts in the GCC and Asia.
Bitar et al. (2017)	1999–2013	33 countries	Principal component analysis, GLS (random effect), difference in difference estimation and propensity score matching	IBs underperformed compared with their counterparts in politically democratic states, and performed better in fully Sharia and hybrid Sharia states.

IBs, Islamic banks; CB, conventional bank; GDP, gross domestic product; DEA, data envelopment analysis; SFA, stochastic frontier analysis; TOPSIS, technique for order preference similarity to the ideal solution; MENA, Middle East and North Africa region; GMM, generalized method of moment (GMM); UAE, United Arab Emirates; GLS, generalized least squares; SUR, seemingly unrelated regressions; OLS, ordinary least square.

of stability and soundness. Another study explored the fundamental perspectives that originated from the Chapra and Ismaili models that are close to an institutional and welfarist approach, and concluded that Islamic banks should pursue this (Aliyu et al., 2017a). The divergence of the industrial practice from the fundamental theory and the support given by researchers on other contracts have led to the paradigm shift that has mostly overtaken the PLS practices in the system. For Islamic banks to truly follow the first generation's paradigm, they must abide by participatory principles of business transactions rather than being just a financier (Ibrahim

Table 3

Financial Crisis and the Soundness of Islamic banks.

Author(s)	Period	Sample/country(ies)	Methodology	Main Findings
Khan (1986)			Fixed and flexible price	PLS meets the fundamental aims of Islamic
			model	economics, and the Islamic economic and financial system is promising for adjusting financial shocks
				to a normal equilibrium position and is more
Chazi and Syed (2010)	2005–2008	27 IBs and 27 CBs in 14 countries	Descriptive analysis	suitable during a crisis. The IBs have better capital ratios than their conventional counternarts
Čihák and Hesse (2010)	1993-2004	20 OIC Countries	Panel regression models	Small (large) IBs are more (less) stable than their conventional counterparts of the same size
Hussein (2010)	2000 and 2007	6 GCC countries, 194 banks (50 IBs and 144 CBs)	Regression (fixed effect)	IBs tended to take stringent risk strategies and higher consumer confidence than CBs during the crisis. Furthermore, IBs are more capitalized with
Hassan and Dridi (2011)	2007–2009	8 countries (120 IBs and CBs)	Regression Analysis	In 2008, IBs' business modalities that led to increase in their assets and credit growth protect them from profit adverse effect, whereas their
Rahim et al. (2013)	2006–2009	63 IBs in Asia & MENA	DEA	profit decline compared to CBs in 2009 due to poor risk management practices. IBs in Asia are more efficient than those from of the MENA region. Moreover, most of these efficient banks are from GCC countries. As such, the
Beck et al. (2013)	1995–2009	510 banks across 22 countries, 88 of which are IBs	Regression (fixed effect)	economic condition of the countries is found to be the main determinant of the bank's efficiency. IBs are less cost-effective with a higher intermediation ratio, asset quality, and capitalization, even during a crisis. The higher stock performance of listed IBs during the crisis is also caused by their higher capitalization and asset
Bourkhis and Nabi (2013)	-	34 IBs & 34 from6 countries	Regression (random effect)	quality. There was no difference in soundness between the two types of banks during the crisis, whereas IBs outperformed in term of return on assets. This finding diverge from the theoretical foundation of IBs, which explained the ability of the system to be
Zouari and Taktak (2014)	2005–2009	53 IBs in 15 countries	Panel regression analysis	sound even during the crisis. Institutions own most of the IBs, followed by the state and families Similarly, no evidence links ownership share and the performance of IBs, whereas the combined strength of family and state
Johnes et al. (2014)	2004–2009	252 banks (207 CBs and 45 IBs) across 18 countries	DEA and meta-frontier analysis	ownership enhances banks' performance. However, institutional and foreign ownership result in lower performance, and financial crises affect banks' performance negatively. IBs have higher gross and net efficiency with a lower type of efficiency than CBs within the banking environment and attributes. The low efficiency of IBs is caused by a lack of product standardization, whereas high net efficiency reflects their managerial capability.
Rosman et al. (2014)	2007–2010	79 IBs	DEA	IBs sustained operations during a crisis, but most of them are scale-inefficient with decreasing
Belanès et al. (2015)	2005–2011	GCC (30 IBs in 5 countries excluding Oman)	DEA	Not of the IBs performed efficiently at the early stage of the crisis, whereas they experienced a significant drop in efficiency 2 years after the subprime financial crisis
Farooq and Zaheer (2015)	Weekly, 11 July 2008 and 2 January 2009	Pakistan	Regression (fixed effect)	IBs branches are not prone to withdrawals and also tend to attract deposits, as well as granting more loans during the crisis. The lending decisions of IBs were not derived from the changes in the deposits, which had a greater impact on banking stability
Khediri et al. (2015)	2003–2010	44 CBs and 18 IBs in 5 GCC nations	Linear discriminant analysis, logistic regression, Tree of classification and neural network	IBs have better profitability, leverage, liquid, and capital and are less involved in off-balance sheet activities and credit risk than CBs. The financial crisis affected the profitability of the two banks types negatively
Alqahtani et al. (2016)	1998–2012	101 banks from 6 GCC states	Regression (fixed effect)	The profitability, capitalization, and liquidity of IBs outperformed that of CBs in the earlier period of the financial crisis in the GCC and became worse (except for liquidity) at the later stage because of the economic downturn.
Fakhfekh et al. (2016)	Daily data from June 2006-May 2013.	5 GCC countries, 20 IB and 27CBs	Fractionally Integrated Exponential Generalized Autoregressive Conditional Heteroskedastic (FIEGARCH)	Bad news strongly affects volatility and persists longer in CBs than in IBs, which implies that IBs are more resilient than CBs. Similarly, IBs in Saudi Arabia tend to provide the most resilient benchmark model.

Table 3 (Continued)

Author(s)	Period	Sample/country(ies)	Methodology	Main Findings
Al-Khouri and Arouri (2016)	2004–2012	59 GCC banks	Two-step generalized method of moment (2SGMM)	The two types of bank achieved persistent profit and stability over time. Despite the higher profitability of IBs than of CBs in the region, credit growth, the debt ratio, and regulations affect IBs' profitability negatively. IBs' credit growth is negatively affected by nonperforming loans, and positively by government and foreign ownership. Meanwhile, crisis determines the stability and creditworthiness of IBs.
Grira et al. (2016)	1999–2013	352 IBs and 30,572 CBs in 213 countries	Multivariate panel regression analysis	IBs have lower premium compared to CBs, and the deposit insurance premium of the former banks did not increase even during the recent financial crisis.
Olson and Zoubi (2017)	1996–2014	MENA and South East Asia, 22 countries	Regression (fixed effect)	IBs performed better during the financial crisis, then became affected in 2009 because of the economic downturn, which led to the decline in their profit, similar to CBs. Though, the convergence speed of IBs is slower, the two types of banks converge towards similar profitability after the crisis. Despite this, no convergence towards asset and risk was found, which indicates that the two types of banks are different. There is a lack of convergence for the whole sample and cluster of South East Asia. the global financial crisis had a different effect on each country and region.

IB, Islamic bank; CB, conventional bank; GDP, gross domestic product; PLS, profit and loss sharing; DEA, data envelopment analysis; MENA, Middle East and North Africa region.

and Alam, 2017). Therefore, this article highlights the improvements found in the literature regarding this paradigm shift and reviews the empirical studies on performance trends and Islamic banking regulations.

2.3.1. The PLS paradigm

A broadly acceptable framework that comprised theoretical and empirical conceptual reality within a particular discipline is considered to be a paradigm (Igbal and Mirakhor, 2011). The paradigm frame serves as guiding reference towards understanding the theoretical and philosophical structure which other theories, laws, axioms, generalization, and empirical findings used to justify it. For instance, the Islamic banking paradigmatic structure is rooted in Sharia legislation, which abolishes interest-based transactions and promotes risk and profit sharing, mutuality, fairness, and justice (Ng et al., 2015). However, a different study considers the Islamic banking paradigm to be a PLS system (Chong and Liu, 2009), whereas others extend it to socio-economic enhancement (Kamla and Rammal, 2013; Nor and Hashim, 2014). Attaining the social and economic objective is one of the cardinal aims that undergird the foundation of Islamic economics and finance. Thus the earlier theorists of the discipline formed a paradigm based on the PLS principle (Chapra, 1979a, 1979b, 1985; Siddiqui, 1985; Siddiqui, 1983; Ariff, 1988), which negates the fixed rate of return that is predetermined in loans and other financial transactions. In this view, financial transactions are modeled on a participatory arrangement between the financier and the entrepreneur that is practiced via mudaraba and musharaka partnership business (Siddigi, 2004; Hassan, 1999). As such, the scholars opposed debt-based transactions but favored equity participation in the earlier era (Ahmed, 1989). This position aims to restore the equity, fairness, and justice in the financial system, which can translate into national growth. The focus of this school of thought is the means of fulfilling the higher objective of Sharia (maqasid) that is pivotal to social well-being. Consequently, this perspective postulates that financial stability, and economic and human prosperity can be perfected through an interest-free system that is based on risk sharing (Khan, 1986; Darrat, 1988; Bashir and Darrat, 1992; Bashir et al., 1993; Hassan and Aldayel, 1998). The PLS paradigm is argued to be suitable for the United

States' external equity finance on agriculture (Crane and Leatham, 1993). The attribution of risk sharing in the developed nations gives a new insight into its potential. The complement of this paradigm can also be traced from the focal shift to sustainable development goals that encompasses not only the prosperous economic growth but also social inclusiveness and environmental protection (United Nations, 2015).

Nowadays, financial institutions and policy makers are concerned with sustainable growth and development through capital allocation and financial decisions that will impact society and the environment (Aliyu et al., 2017a). Therefore, finance for sustainable development does not preclude any sector that supports this development. The risk-sharing system of Islamic banking and finance contributes to sustainable development by funding the untapped opportunities in emerging and developing countries that cover most of the world. Toward these goals, the newly created United Nations sustainable development goal provide another avenue for Islamic finance to show its potential for shared prosperity for present and future generations (Ahmed et al., 2015; World Bank and Islamic Development Bank Group, 2017). The concept of Islamic finance's social safety net aims to address the endemic social poverty effect, protect and manage the potential risks of the vulnerable, and ensure wealth and income distribution (Askari et al., 2015). This concurs the earlier idea that Islamic finance can provide a sustainable safety net to address social problems so long as its guiding principles are maintained. Meanwhile, the safety net can be achieved if the industry is performing well with steady growth in the market, and society and the environment are witnessing its impacts through socially responsible investments that are built on reward and risk sharing. Islamic economic and financial principles recognize social investments that extend to the needy regarding zakat, inheritance, Waqf (endowment, foundation, charity trust), and other forms of charity as well as the prohibition of interest, speculations, and gambling among others. Therefore, the earlier school of thought was confident about preserving social harmony by promoting growth and equitable opportunities for all (Chapra, 1992, 2000; Naqvi, 2003). In the same vein, the system considers the environmental impacts and thus encourages corporate, social, and environmental responsibility, which is deeply rooted in the

Table 4

Solvency and Risk.

Author(c)	Doriod	Sample/country(ics)	Mathadalagy	Main Findings
Autioi(s)	Periou	sample/country(les)	Wethodology	Main Findings
Darrat (1988)	1960–1984	Tunisia	Regression analysis	The interest-free monetary system is more efficient and stable than the traditional system especially during a crisis and excessive bank failure.
Hassan and Aldayel (1998)	1970–1987	Ten countries	Regression Analysis	The variation of the velocity of money for interest-free banking is lower than that of the than interest-based system, which shows the relatively bicker at billing of the formation
How et al. (2005)	1988–1996	Malaysia 23 Banks	T-test and Regression	nigner stability of the former. Lower credit and liquidity risks with higher interest risk are associated with commercial banks having Islamic financing compared with those without similar financing. Bank size is related to credit risk.
Dusuki (2008)	-	Questionnaires of 1500 on various stakeholders	Descriptive & Kruskal-Wallis tests	The respondents perceived IBs to promote Islamic values and support the social objectives through poverty alleviation and sustainable development schemes.
Ismail and Sulaiman (2008)	1994-2006	15 IBs	GMM	IBs are willing to take on more risk.
Ariffin et al. (2009)	-	Questionnaire of 28 IBs in14 countries and supplementary interviews	Descriptive analysis of mean value, Kruskal-Wallis test, and Chi-square test	IBs and CBs face different types of risk, but they differ in the level of risk. Different assessment tools need to be used for examining both types of banks.
Chazi and Syed (2010)	2005-2008	27 IBs and 27 CBs in 14 countries	Descriptive analysis	The IBs have better capital ratios than their conventional counterparts.
Rahman and Shahimi (2010)	1994-2008	Malaysia, 14 IBs	Regression (fixed effect)	IBs' financing structure does not have an influence on credit risk exposure in Malaysia when micro and macro-determinants are also taken into consideration
Hussein (2010)	2000 and 2007	6 GCC countries, 194 banks (50 IBs and 144 CBs)	Regression (fixed effect)	IBs tended to take stringent risk strategies and higher consumer confidence than CBs during the crisis. Furthermore, IBs are more capitalized with lower liquidity than CBs
Čihák and Hesse (2010)	1993-2004	20 OIC Countries	Panel regression models	Small (large) IBs are more (less) stable than their conventional counterparts of the same size
Diaw and Mbow (2011)	2005–2009	9 IBs in 7 countries	Regression	The return on <i>mudharaba</i> deposits is half of the return on equity and is correlated with the interest rate
Masood et al. (2011)	1998–2008	30 IBs in different countries	Z-score & regression analysis	Small IBs are more stable than large banks, whereas large banks have higher income diversity than small banks. Similarly, the stability score increases with the size of the large banks and decreases with that of email banks.
Pellegrina (2012)	2001–2011	350 banks; 289 CBs and 61 lBs	Regression methods and stochastic cost frontier techniques.	IBs have lower non-performing loans and efficiency and a higher liquid position than CBs. Meanwhile, highly capitalized CBs have shifted from traditional to investment banking, which increases their perfotability and efficiency
Grassa (2012)	2002-2008	GCC (42 IBs)	Descriptive, analytical and multiple regression analysis	The higher risk and insolvency of IBs (listed and non-listed) are associated with greater reliance on PLS products. However, no relationship was observed between rick and other non-PLS products
Hussain and Al-Ajmi (2012)	2009/2010	Bahrain (560 questionnaires)	Regression analysis	Credit, operational and liquidity risk are important risks affecting both types of banks in Bahrain. However, IBs understand and manage risks better than CBs, and the risk lavel foced by IBs is
Masood et al. (2012)	-	UAE, 6 Banks (3 IBs, 3CBs) with 148 credit risk managers	Logistic regression	significantly higher than that faced by CBs. IBs in UAE the practice more robust credit risk management strategies and they do not rely heavily on personal experience and simple risk mitigating measures compared with non-IBs
Alam (2012)	2006–2010.	11 major dual banking countries	Regression (fixed effect)	Having higher capital requirements lowers the risk level of the two types of banks, but supervisory power has no significant effect on the banks' risk behavior. Nevertheless, higher restrictions increase risk-taking behavior of CBs and reduce that of the IBs.
Abedifar et al. (2013)	1999–2009	553 banks in 24 countries	Regression (random effect)	Small IBs have lower credit risk and insolvency risk than CBs. Moreover, IBs charge rents on their customers and the loan quality of IBs is less responsive to interest rates than that of CBs.
Beck et al. (2013)	1995–2009	510 banks across 22 countries, 88 of which are IBs	Regression (fixed effect)	IBs are less cost-effective with a higher intermediation ratio, asset quality, and capitalization, even during a crisis. The higher stock performance of listed IBs during the crisis is also caused by their higher capitalization and asset quality.

Table 4 (Continued)

Author(s)	Period	Sample/country(ies)	Methodology	Main Findings
Hamza and Saadaoui (2013)	2005-2009	59 IBs	System GMM	The excessive risk-taking the behavior of IBs was caused by a negative relationship between profit sharing investment account-PSIA and the regulatory capital ratio, which indicates other deficiencies in their risk management and
Srairi (2013)	2005-2009	131 commercial banks (93 CBs and 40 IBs) in	Regression and two-stage least squares	governance system. The risk exposure of IBs is lower than that of CBs, and the two types of privately owned banks are
Baele et al. (2014)	2006:04-2008:12	10 MENA countries Pakistan, with more than 150,000 loans data points	Duration analysis	more stable than state-owned banks. Empirical evidence shows that big cities with common religious-political interests reduce the likelihood of loan defaults during Ramadan (i.e. an individual or network effect) In general, CB loans
Zouari and Taktak (2014)	2005–2009	53 IBs in 15 countries	Panel regression analysis	default twice as often as Islamic loans Institutions own most of the IBs, followed by the state and families Similarly, no evidence links ownership share and the performance of IBs, whereas the combined strength of family and state ownership enhances banks' performance. However, institutional and foreign ownership result in lower performance, and financial crises affect banks' performance negatively
Lahrech et al. (2014)	2006–2010	25 lBs in 18 different countries	Regression analysis	Transparency will enhance logitrety. Transparency will enhance lbs' practice regarding profit allocation and encourage Investment Account Holders-IAHs to manage their funds better. In addition, better performance of IBs will
Hamza and Kachtouli (2014)	2004-2009	62 IBS and 128 CBS in 18 countries of MENA and South Asia	Regression, concentration ratios and Herfindahl-Hirschman index HHI, Panzar and Ross H and Lerner index	encourage them towards PLS practices on IAHs. Although the two types of banks are concentrated and monopolistic, IBs are moderately concentrated, with a high degree of market power.
Saeed and Izzeldin (2016)	2002–2010	5 GCC countries plus Bangladesh, Indonesia, and Pakistan	SFA, DD & VAR	Inverse causality exists between profit efficiency and default risk. For the GCC (CBs), a decrease in default risk is correlated with low efficiency. The early warning of instability was lower for IBs because of the absence of a tradeoff between default risk and efficiency, but this was also found for CBs
Bougatef (2015)	2008-2010	69 IBs in 16 countries	GMM	Corruption significantly worsens the problem of non-performing finance and weakens the soundness of IBs
Daher et al. (2015)	2005–2012	128 CBs & IBs in 18 countries (44 IBs)	Dynamic GMM	The higher capital buffer of privately owned IBs compared with state own banks safeguard shareholders through mitigating the effects of commercial risk. The relationship between equity investment risk and bank capital buffers varies across regions.
Miah and Sharmeen (2015)	2001–2011	Bangladesh, 20 CBs and 7 IBs	SFA & SUR	CBs are more cost-efficient than IBs. Meanwhile, a bidirectional relationship is found between capital to efficiency, negatively and positively, respectively, for IBs and CBs, alongside a positive bidirectional relationship between efficiency and risk
Jawadi et al. (2015a)	April 2006-February 2013	10 IBs and 10 CBs (major)	Panel regression analysis (fixed effect); Panel VAR model & causality test	IBS and CBs differ only on financial risk, weak interactions exist between IBs and CBs, and panel causality tests reject the hypothesis from IBs to CBs
Kabir et al. (2015)	2000-2012	156 CBs and 37 IBs in 13 countries	Merton distance to default DD and Z-score: Regression	IBs have low credit risk according to DD measures but the Z-score and Non Performing Loans indicate
Khediri et al. (2015)	2003-2010	44 CBs and 18 IBs in 5 GCC nations	random effect Linear discriminant analysis, logistic regression, Tree of classification and neural network	inguler Credit FISK than C4S. IBs have better profitability, leverage, liquid, and capital and are less involved in off-balance sheet activities and credit risk than CBs. The financial crisis affected the profitability of the two banks types negatively.
Mollah and Zaman (2015)	2005–2011	25 countries, 172 banks (86 lBs and 86 CBs)	GMM, GLS (random effect model)	The performance of IBs improved with the supervisory role of the Sharia board and declined when the board assumed an advisory role. Likewise, board structure and CEO power have a negative effect on IBs' performance.
Louati et al. (2015)	2005–2012	12 MENA and South East Asian countries, 70 CBs and 47 IBs	Panel regression analysis	The competitive conditions failed to exhibit a relationship between weighted asset ratio and IBs' interest prohibition behavior. The funding ratio of the banks' influenced banking behavior in the sample countries.

Table 4 (Continued)

Author(s)	Period	Sample/country(ies)	Methodology	Main Findings
Ashraf et al. (2016a)	2000-2011	6 GCC countries (125	Regression (random effect	Insolvency risk is associated with higher
	2000 2011	banks)	and two-stage least square	shareholding ownership but not a specific type of shareholders. Fragility is associated with the size of the two types of banks, and banks that generate income from fee-based activities are more solvent than those with traditional activities.
Athari et al. (2016)	2003–2012	Bahrain, Kuwait, Egypt, Saudi Arabia, Qatar, Jordan, UAE	Regression (random effect), Tobit model (random) & system GMM	IBs use a dividend policy as a substitute mechanism for reducing the agency problem and the insider high risk of expropriation. IBs also use an agency dividends model.
Al-Khouri and Arouri (2016)	2004–2012	59 GCC banks	Two-step generalized method of moment (2SGMM)	The two types of bank achieved persistent profit and stability over time. Despite the higher profitability of IBs than of CBs in the region, credit growth, the debt ratio, and regulations affect IBs' profitability negatively. IBs' credit growth is negatively affected by nonperforming loans, and positively by government and foreign ownership. Meanwhile, crisis determines the stability and creditworthiness of IBs.
Hassan et al. (2016)	January 2006–October 2014	Turkey	Basic indicator approach	IBs suffered from exchange rate fluctuations and non-performing loans, which also lead decline of their capital adequacy.
Ghassan and Fachin (2016)	2005:q1-2011:q4	Saudi Arabia, six banks (4 CBs and 2 IBs)	Co-integration; Fully Modified Ordinary Least Squares (FMOLS)	Individual bank heterogeneity matters more than banks type. Large IBs in the country contribute positively to the stability of the system.
Grassa (2016b)	2005–2012	43 IBs in the GCC	Three-stage least squares	Income and the share of ownership structure influences the insolvency risk of IBs because of the deposits structure and the strategic decisions of majority shareholders.
Hamza (2016)	2004–2012	60 IBs	GMM estimator	Interest rate affect deposit return, small IBs pays a better return, moral hazard and excessive risk-taking are affecting investment deposit contract.
Louhichi and Boujelbene (2016)	2005–2012	10 OIC countries, 117 banks located in MENA and South East Asia	GMM & Panel Vector autoregressive	The two types of banks differ since IBs use IAH and PLS which lead them to have less liability of losses to investment. Non-performing loans of CBs reduce cost efficiency, and moral hazard and skimping prevail in the two types of banks. Likewise, economic growth, capitalization, and profitability improve loans quality and lower risk but inflation reduces them in the long-run.
Mollah et al. (2016)	2005–2013	52 IBs and 104 CBs in 14 countries	Random effects GLS & two-step GMM method.	The governance structure of IBs allows them to take higher risk and perform better becasusse of their and transaction mechanism and product complexity. Similarly, IBs are better capitalized than CBs.
Olson and Zoubi (2016)	1996-2014	MENA and South East Asia, 22 countries	Regression (fixed effect)	IBs performed better during the financial crisis, then became affected in 2009 because of the economic downturn, which led to the decline in their profit, similar to CBs. Though, the convergence speed of IBs is slower, the two types of banks converge towards similar profitability after the crisis. Despite this, no convergence towards asset and risk was found, which indicates that the two types of banks are different. There is a lack of convergence for the whole sample and cluster of South East Asia. the global financial crisis had a different effect on each country and region.
Pappas et al. (2016)	1995–2010	421 banks in 20 Middle Eastern and Far Eastern countries	Cox proportional hazard model; logit and panel regression	IBs have lower failure risk than CBs. Therefore, early warning implementations for bank failure have to consider the distinct difference between the bank types.
Alandejani et al. (2017)	1995–2011	Five GCC countries, 56 CBs	Survival analysis. Parametric, continuous-time and discrete time models and series of Monte Carlo simulation	IBs in the GCC countries have a higher failure hazard likelihood than their conventional counterparts in the same region.
Basher et al. (2017)	2007-2013	22IBs	Parametric and Bayesian	IBs total capital increase tends to effect the banks'
Aliyu and Yusof, (2017)	1987–2014	170IBs of 24 countries	Survival analysis, logit regression, and mixed	IBs will survive longer though close monitoring of their failure indicators and participation in real economic activities
Ibrahim and Rizvi (2017)	2000-2014	45 IBs in 13 countries	GMM estimator	The non-linear effect of the size of IBs revealed that the largest banks are stable, at least after a certain threshold. Canital regulation increases stability

IB, Islamic bank; CB, conventional bank; PLS, profit and loss sharing; DEA, data envelopment analysis; SFA, stochastic frontier analysis; MENA, Middle East and North Africa region; GMM, generalized method of moment (GMM); UAE, United Arab Emirates; squares; VAR, vector autoregressive; DD, distance to default; SUR, seemingly unrelated regressions.

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Table 5 Efficiency of Islamic Banks.

Author(s)	Period	Sample/country(ies)	Methodology	Main Findings
Yudistira (2004)	1997-2000	18 IBs in 12 countries	DEA	The inefficiency of the 18 IBs is around 10%, which
Mokhtar et al. (2006)	1997-2003	Malaysia 42 banks (2 full-fledged IBs, 20 windows, and 20 CBs)	Stochastic Frontier Approach (SFA)	relatively lower than CBs. The inefficiency effect is severe to IBs around 1998–1999 financial crisis. The overall efficiency of the IBs has been increasing during the period of the study as well as their asset, deposit, & financing, but CBs are stable. However, IBs' efficiency scores are lower than those of CBs. Moreover, full-fledged IBs are more efficient than window banks, and the foreign window tends to
Hassan (2006) Sufian (2007)	1995–2001 2001–2004	21 countries Malaysia (15 banks)	DEA Correlation analysis & DEA	be more efficient than domestic banks. CBs are less efficient than IBs. Malaysian domestic IBs were more efficient than foreign banks, and banks that are more efficient
Dusuki (2008)	-	Questionnaires of 1500 on various stakeholders	Descriptive & Kruskal–Wallis tests	The respondents perceived IBs to promote Islamic values and support the social objectives through poverty alleviation and sustainable development schemes
Abdul-Majid et al. (2010)	1996–2002	23 IBs and 88 CBs in 10 countries	Output distance approach of SFA	IBS have a reasonable return to scale than their conventional counterparts, and the former may benefit from a return to scale. However, inefficiency is relatively high in Sudan and Yemen
Emrouznejad and Anouze (2010)	2002	GCC, 36 banks	DEA; classification and regression of the decision tree	than in Bahrain and Bangladesh. The effect of market share on efficiency depends on the size and operation style of the two types of banks. Capital structure, price book value, and the earning index can be used to ascertain the productivity of selected banks
Abdul-Majid et al. (2011)	1996–2002	Malaysia	SFA and a generalized Malmquist productivity index	The full-fledged IBs have overcome cost disadvantages through technical changes, and the same applies for those operating Islamic windows. In general, IBs are characterized by high input requirements and mergers do not enhance the banket of ficiance to parformance.
Olson and Zoubi (2011)	2000–2008	10 MENA countries	Regression (fixed effect); distribution-free approach and SFA	More influence on profit than cost-efficiency. Priority should be given more to the former than the latter. MENA banks score well in comparison to global banks and lower than European banks. However, banks in MENA are below the optimal
Pellegrina (2012)	2001–2011	350 banks; 289 CBs and 61 IBs	Regression methods and stochastic cost frontier techniques.	size. IBs have lower non-performing loans and efficiency and a higher liquid position than CBs. Meanwhile, highly capitalized CBs have shifted from traditional to investment banking, which
Yahya et al. (2012)	2006-2008	Malaysia (29 banks) IBs & CBs	DEA	No significant level of efficiency exists between IBs and CBs.
Rahim et al. (2013)	2006–2009	63 IBs in Asia & MENA	DEA	IBs in Asia are more efficient than those from of the MENA region. Moreover, most of these efficient banks are from GCC countries. As such, the economic condition of the countries is found to be the main determinant of the bank's efficiency
Alam (2013)	2006–2010	70 IBs from 11 countries	DEA & SUR	The technical efficiency of IBs increases as a result of regulations and strict monitoring, coupled with higher supervisory power and reduces the
Ismail et al. (2013)	2006–2009	Malaysia, 8 IBs and 9CBs	DEA and Tobit regression	Tisk-taking benavior of the bank. The cost-efficient utilization of the two types of banks differs (CBs, information technology and electronics; IBs, resource allocation) whereas size influences the scale efficiency of both types of banks. Similarly, the Tobit model reveals that efficiency is affected positively by size and capital
Sufian et al. (2014)	2006–2010	Malaysia, 17 IBs (domestic and foreign)	Data envelopment analysis	and negatively by loan quality. Domestic IBs have lower revenue efficiency than foreign banks. Similarly, large local banks tend to operate on constant or decreasing returns to scale, whereas small foreign IBs operate on constant or increasing returns to scale
Kamarudin et al. (2014)	2007–2011	74 banks (47 CBs and 27 IBs) in GCC countries	Data envelopment analysis, regression analysis	IBs have lower efficiencies (revenue, profit, and cost) than CBs. Revenue efficiency is a strong determinant of profitability. Likewise, functional quality (asset, and management), liquidity, and macroeconomic determinants also influence GCC banks' efficiency.

Table 5 (Continued)	able 5 (Continued)				
Author(s)	Period	Sample/country(ies)	Methodology	Main Findings	
Johnes et al. (2014)	2004-2009	252 banks (207 CBs and 45 IBs) across 18 countries	DEA and meta-frontier analysis	IBs have higher gross and net efficiency with a lower type of efficiency than CBs within the banking environment and attributes. The low efficiency of IBs is caused by a lack of product standardization, whereas high net efficiency	
Mobarek and Kalonov (2014)	2004-2009	18 OIC countries, 307 CBs and 101 IBs	DEA, SFA & regression	reflects their managerial capability. DEA & SFA reveals that CBs are more efficient than IBs, whereas the Z-score indicates the high stability of IBs over CBs. The dominance of IBs' stability declined in Pabrain Kuusii and IMF.	
Rosman et al. (2014)	2007–2010	79 IBs	DEA	IBs sustained operations during a crisis, but most of them are scale-inefficient with decreasing	
Shaban et al. (2014)	2002–2010	Indonesia, 107 CBs & 7 IBs	GMM, SFA & causality test	Small banks tend to allocate a small amount of lending. IBs benefit more from small business lending, which shows overpricing behavior arising from the high unadjusted rate of return, given the risk exposure of their products	
Belanès et al. (2015)	2005–2011	GCC (30 IBs in 5 countries excluding Oman)	DEA	Most of the IBs performed efficiently at the early stage of the crisis, whereas they experienced a significant drop in efficiency 2 years after the subprime financial crisis	
Shawtari et al. (2015)	1996–2011	Yemen (16 banks; 4 IBs & 12 CBs)	Data envelopment window analysis, panel data analysis	Yemeni banking efficiency was on a declining trend with increased instability during the latter period of the study. IBs are more efficient than CBs,	
Daly and Frikha (2015)	2005-2009	Bahrain (6 IBs & 6CBs)	DEA and regression (pool OLS)	but CBS were relatively stable. Despite the negative implications of government interventions on performance of CBs, the IBs' size increases with an increase in customer denosits	
Miah and Sharmeen (2015)	2001–2011	Bangladesh, 20 CBs and 7 IBs	SFA & SUR	CBs are more cost-efficient than IBs. Meanwhile, a bidirectional relationship is found between capital to efficiency, negatively and positively, respectively, for IBs and CBs, alongside a positive bidirectional relationship between efficiency and	
Louati et al. (2015)	2005–2012	12 MENA and South East Asian countries, 70 CBs and 47 IBs	Panel regression analysis	The competitive conditions failed to exhibit a relationship between weighted asset ratio and IBs' interest prohibition behavior. The funding ratio of the banks' influenced banking behavior in the cample countries	
Abedifar et al. (2016)	1999–2011	22 Muslim countries	Regression (fixed effect)	In the low-income predominantly Muslims nations and those with a higher uncertainty avoidance index, the market share of IBs influences their financial intermediation and deepening, and economic welfare. The greater market share of IBS is related to the higher efficiency of CBs.	
Hardianto and Wulandari (2016)	2011–2013, quarterly	Indonesia, 39 banks (31 CBs and 8 IBs),	Stochastic frontier approach-SFA and panel data regression	IBs have a high intermediation ratio, high fee income, and low efficiency. Intermediation and fee income increases as the bank increases its size, while intermediation reduces when inefficiencies and non-loan earning assets increases	
Louhichi and Boujelbene (2016)	2005–2012	10 OIC countries, 117 banks located in MENA and South East Asia	GMM & Panel Vector autoregressive	The two types of banks differ since IBs use IAH and PLS which lead them to have less liability of losses to investment. Non-performing loans of CBs reduce cost efficiency, and moral hazard and skimping prevail in the two types of banks. Likewise, economic growth, capitalization, and profitability improve loans quality and lower risk but inflation reduces them in the long-run.	
Wanke et al. (2016c)	2009–2013	Malaysia, 16 IBs	Neural networks & TOPSIS	The outcome of the cost structure reveals an inverse association with the efficiency level; IBs' equity tends to influence their efficiency positively. Foreign IBs in Malaysia face regulatory and cultural barriers, which affect their efficiency, and fall below national IBs.	
Wanke et al. (2016b)	2010-2014	114 IBs from 24 countries	TOPSIS & neural networks	High costs reduce the efficiency of IBs, although the cost of cash reserves and labor has a positive impact on efficiency. Similarly, cultural traditions influence efficiency positively.	
Wanke et al. (2016a)	2009–2013	Malaysia, 27 CBs and 16 IBs	Dynamic Slacks Based Model; Monte Carlo Markov Chain & Generalized Linear Mixed Model	Higher inefficiency and slacks exist in IBs than in CBs. Foreign IBs in Malaysia exhibit lower efficiency than national IBs because of the cultural and regulatory barrier.	

IB, Islamic bank; CB, conventional bank; PLS, profit and loss sharing; DEA, data envelopment analysis; SFA, stochastic frontier analysis; TOPSIS, technique for order preference similarity to the ideal solution; MENA, Middle East and North Africa region; GMM, generalized method of moment (GMM); UAE, United Arab Emirates; SUR, seemingly unrelated regressions; OLS, ordinary least square.

Table 6

Maqasid, Disclosure, and Financial inclusion.

Author(s)	Period	Sample/country(ies)	Methodology	Main Findings
Dusuki (2008)	-	Questionnaires of 1500 on various stakeholders	Descriptive & Kruskal–Wallis tests	The respondents perceived IBs to promote Islamic values and support the social objectives through poverty alleviation and sustainable development
Mohammed et al. (2008)	2000–2005	6 IBs in 6 countries	Simple additive weighting	The study conceptualized <i>maqsid</i> index, and assess some selected IBs. It was found that none of the banks attain the required expected performance of the index.
Antonio et al. (2012)	2008-2010	Indonesia and Jordan	Simple additive weighting	Indonesian IBs performed better compared to those in Jordan based on their <i>maqasid</i> performance.
El-Komi and Croson (2013)	October and early November 2009	Experiment (44 participants) CBEES (Center for Behavioral and Experimental Economic Science) lab at UT Dallas	Logit regression, <i>t</i> -test	Compliance with PLS contract supersedes that traditional practice in this experiment.
Azzam and Rettab (2013)	2001–2005	6 GCC countries	Nonlinear two stage least square and Nonlinear three-stage least squares	IBs are risk-averse and CBs are risk-neutral. Islamic financing and deposit are welfare-neutral, whereas conventional loans enhance welfare by being welfare-neutral on their deposits.
Shaban et al. (2014)	2002–2010	Indonesia, 107 CBs & 7 IBs	GMM, SFA & causality test	Small banks tend to allocate a small amount of lending. IBs benefit more from small business lending, which shows overpricing behavior arising from the high unadjusted rate of return, given the risk exposure of their products.
Nor and Hashim (2014)	-	Interview-11 important banks' officers- Malaysia	Thematic analysis	Although banks are committed to the corporate social responsibility, there is a need for enhancing the social and environmental commitments.
Mallin et al. (2014)	2010–2011	90 IBs of 13 countries	OLS, Three stage least square	IBs engages in social commitments, committed to Islamic financial standards on disclosure and fail towards corporate social responsibility (CSR). There is a significant relationship between performance SCP
Zaki et al. (2014)	2006–2010	Asia, 7 countries, 7 banks	Regression analysis	Disclosure components of IBs are negatively related to their performance, except for product and service, coupled with employee commitment, which is positive
Belal et al. (2014)	1983–2010	Bangladesh	Documentary analysis	The banks failed in providing comprehensive disclosure in their report and concentrates on debt-based financing that may hinder the bank from achieving a social objective.
Asutay and Harningtyas (2015)	2008-2012	13 IBs of 6 countries	Simple additive weighting	IBs are operationally failed to achieve the required target goal of the <i>maqasid</i> Sharia.
Platonova et al. (2016)	2000–2014	24 IBs in 5 GCC countries,	Content analysis, regression analysis (fixed effect model)	Corporate Social Responsibility activities relate to product and service, mission and vision. The CSR disclosure influences IBs' performance in the GCC countries positively. The current CSR activities will have a longer positive effect on the financial performance of banks.
Aysan et al. (2016b)	2006:4-2014:2	40 (36 CBs & 4 IBs) Turkish commercial banks	OLS and fixed effect estimator	IBs are more inclined toward financing Small and Medium Enterprises than CBs, and their loan quality is comparable to that of CBs.
Minhat and Dzolkarnaini (2016)	2012	Malaysia, 816 Malaysian corporate firms	Probit regression	PLS products are difficult to operate, which lead to their lower spread among the non-financial firms in Malaysia. Less profitable firms largely use the products with high leverage. <i>Murabaha</i> dominates the market which is consistent with moral hazard risk theory.
Mertzanis, (2016)	2006–2015	37,455 firms of the 42 Islamic countries	Ordered probit model	Financing constrain is attached to firm-specific characteristics, whereas macro attribute to country specific affects the firm substantial power.
Mohd Nor et al. (2016)	-	17 IBs Malaysia	Mixed method	IBs are not socially oriented as they pursue to be efficient.
Mohamad et al. (2016)	-	82 Questionnaires to 16 IBs	Malaysia	IBs are promoting <i>maqasid</i> Sharia in the country particularly fairness and public interest.
Nobanee and Ellili (2016)	2003-2013	UAE, 16 banks listed on both the Dubai financial market and the Abu Dhabi	GMM estimator	The sustainability disclosure of IBs in UAE is lower than that of their conventional counterparts. Reporting has an impact on CBs' performance but
Aysan et al. (2017b)	2004:q3-2012q4	securities market 35 CBs and 4IBs in Turkey	Panel VAR and IRF	IDE OFFICIENT OF IDES. IBs credit is profoundly respond to policy rate changes due to their concentrations on the SME financing.

IB, Islamic bank; CB, conventional bank; SFA, stochastic frontier analysis; GMM, generalized method of moment (GMM); UAE, United Arab Emirates; OLS, ordinary least square.

Table 7Islamic Banking Regulations.

Author(s)	Period	Sample/country(ies)	Methodology	Main Findings
Čihák and Hesse (2010)	1993–2004	20 OIC Countries	Panel regression models	Small (large) IBs are more (less) stable than their conventional counterparts of the same size. The two types of banking can operate without jeopardizing one another.
Alam (2012)	2006–2010.	11 major dual banking countries	Regression (fixed effect)	Having higher capital requirements lowers the risk level of the two types of banks, but supervisory power has no significant effect on the banks' risk behavior. Nevertheless, higher restrictions increase risk-taking behavior of CBs and reduce that of the lBs.
Alam (2013)	2006–2010.	70 IBs from 11 countries	DEA & SUR	The technical efficiency of IBs increases as a result of regulations and strict monitoring, coupled with higher supervisory power and reduces the risk-taking behavior of the bank.
Louhichi and Boujelbene (2016)	2005–2012	10 OIC countries, 117 banks located in MENA and South East Asia	GMM & Panel Vector autoregressive	The two types of banks differ since IBs use IAH and PLS which lead them to have less liability of losses to investment. Non-performing loans of CBs reduce cost efficiency, and moral hazard and skimping prevail in the two types of banks. Likewise, economic growth, capitalization, and profitability improve loans quality and lower risk but inflation reduces them in the long-run.
Ashraf et al. (2016b)	2000-2013	133 IBs of 30 Jurisdictions	Dynamic Panel analysis	The adjusted net stable funding ratio has the potential of improving IBs stability.
Aysan et al. (2016a)	2002:4-2012:4	Turkey	Fixed effect	Market discipline of the IBs is influenced by the reform of the insurance deposit scheme in Turkey.
Ibrahim and Rizvi (2017)	2000-2014	45 IBs in 13 countries	GMM estimator	The non-linear effect of the size of IBs revealed that the largest banks are stable, at least after a certain threshold. Capital regulation increases stability.
Meslier et al. (2017)	2000-2014	20 countries	Fixed effect	The market power of IBs and CBs are different, which may have implications for the financial stability and Sharia-compliant of the former.
Louhichi and Boujelbene, (2017)	2005–2014	123 banks-34 IBs and CBs 89 in the 10 Middle Eastern and Asia countries.	GMM estimator	High-quality capital strengthens bank to be resilient even during a financial crisis.

IB, Islamic bank; CB, conventional bank; PLS, profit and loss sharing; DEA, data envelopment analysis; MENA, Middle East and North Africa region; GMM, generalized method of moment (GMM); SUR, seemingly unrelated regressions.

ideological principles of Islam (Kamla et al., 2006). Therefore, balancing economic, social, and environmental issues lies within the responsibility of all stakeholders towards supporting the entire system. For instance, it is not only the function of the managers and corporate board members who are required to be industrious in achieving the desired growth of the industry, but the regulators also play a role in providing prudential guidelines and regulations in line with fair play in the system.

2.3.2. The PLS and the paradigm shift

The second school of thought argues for a paradigm shift beyond profit and loss contracts to another phase of product development that include financial innovations (including financial engineering). The work of Ismail (1986, 2002) explicitly supports deferred contracts and has generated debate on the exegesis of the verses in the Quran. Ismail (2002) argued that debt contract is preferred over PLS arrangements. The predominance of alternative contracts in the 1980s such as deferred payment of sales and delivery, leasing and hire purchase, and murahaba (mark-up sales) occupied 90% of the lending model in Pakistan (Ahmed, 1989). A similar claim of deviating from the PLS paradigm was presented in a study advocating for consideration of Islamic banks when issuing central bank policies (El-gamal, 1999). A recent joint report (World Bank and Islamic Development Bank Group, 2017) indicated that debtbased contracts dominate Islamic banks' transactions: murabaha and deferred sales making up 78.5%, and leasing and hire purchase accounting for 10.8%. Meanwhile, asset-based financing had a lower share: 1.7% and 4.2% for mudarabah (silent partnership) and musharakah (joint venture) contracts respectively⁶. However, some difficulties relating to profit sharing contracts have been identified, based on country experiences. These include the contract implementation problem, a shortage of expertise to operate the mode of financing, monitoring issues (particularly on the side of policymakers), adverse selection, and moral hazards (Cobham, 1992; Mahdi and Abbes, 2017; Warde, 2000). Additionally, PLS contracts have a tendency to suffering in the areas of proper accountability and transparency, since mutual contracts rely heavily on trust between the parties involved, whereas a thorough monitoring procedure can incur additional costs. Consequently, El-Gama (2006) foresaw the Islamic banks' products converging to conventional forms because of some legal requirements. This is true, since some practicing countries are voluntarily adopting Islamic financial standards, while others are still in the process of amending their regulations to accommodate Islamic financial institutions (World Bank and Islamic Development Bank Group, 2017).

Nonetheless, the performance management, corporate board, and regulators cannot be meaningfully ascertained without rigorous assessment using real-life data from the industry and other stakeholders. With this, empirical studies are among the basic inputs to be used in weighing institutional performance. However, most recent empirical studies of Islamic banks will make it difficult for policy-makers and young researchers to identify the thematic issues concealed within the different findings. Therefore, there is a need for an empirical review of Islamic banking that focuses on the essential themes to help policy-makers and young researchers accurately identify the trends so they can make decisions on the modalities and strategies required. In view of this, previous studies have concentrated on assessing the business practices of Islamic banking institutions (Khan, 1986; Beck et al., 2013; Chong and Liu, 2009; Khan, 2010; Ergeç and Arslan, 2013; Ergec and Kaytanci, 2014; Tai, 2014), whereas others consider socially responsible investments (Abdelsalam et al., 2014, 2015; Platonova

et al., 2016). Thus the empirical and theoretical studies related to Islamic banks have not concentrated on the PLS paradigms with a focus on different locations, periods, products, methods, and purposes. Therefore, the need for an integrated review of this nature is timely, as it will condense the different thematic issues and thus provide new insights in the literature.

2.4. Balance sheet: islamic and conventional banks

A typical Islamic banking balance sheet may tend to differ from their conventional counterpart due to differences in their mode of contracts principles. Islamic banks are Sharia-compliant, while conventional banks are not. The assets side of Islamic banks includes other inputs which are not necessarily covered by the conventional banks. For instance, the assets and financing activities of Islamic banks are combined -i.e., they are categorized into financing assets (murabaha, salam, Istisna and ijara etc.) and investment (mudaraba and musharaka) assets (van Greuning and Igbal, 2008). The financing of Islamic banks is based on buying and selling commodities to customers, while the participatory investments of mudaraba and musharaka matches the PLS principles that promote entrepreneurial practice within an economy (Aliyu et al., 2017b). As a result, Islamic banks' assets side of the balance sheet accounts for sale receivables, investment in the lease and real estate, and equity financing (Awadzi et al., 2015). However, there are common items on the assets side of both Islamic and conventional banks' balance sheets. These include cash and cash equivalents, investment in subsidiaries and securities, and fixed assets among others. The loans and advances to customers are not considered as part of the Islamic banks' assets, whereas the bank receives fees as services charge. On the liability side, conventional banks have savings and time deposit which instantaneously creates interest even without the use of the funds, and may tend to create a mismatch between assets and liability of that balance sheet (van Greuning and Igbal, 2008). Islamic banks are Sharia-compliant that abolishes interest, thus, in principle, their rate of demand deposits and that of financing shall not mimic conventional rate as a benchmark. In contrast, Islamic banks have demand deposits (amanah) as safekeeping based on trust, which the bank has the right to use the funds and share profit on return with the depositors (Ismail, 2010). Similarly, Islamic banks have some peculiar items at the liability side regarding the profit sharing investment account (restricted and unrestricted) and profit equalization funds, which are part of the exceptions to the conventional banks' balance sheet. At the same time, conventional banks are allowed to trade in complex derivatives and appear in their balance sheet items, while Islamic banks are not. Islamic banks are discouraged to create leverage, which makes the system less risky compared to conventional banks that deals with the interest rate (van Greuning and Iqbal, 2008). In sum, the Islamic banks are not exposed to asset-liability mismatch due to instantaneous interest as a result of customers' deposit and have a link with the real economic activities through depositors-bank- entrepreneurs' relationship. In principle, the association of Islamic banks with physical assets can make them stable compared to conventional banks. However, this assertion cannot be concluded without intensive review on the past and existing literature on Islamic banking practices.

2.5. Islamic banking practices

Islamic banks are expected to operate within the foundational theories of its establishment that emerge through *mudharaba* and *musharaka* contracts. Nowadays, practices fail to uphold this principle because of the principal–agent problem (Ismail, 2011). For the system to maintain its earlier postulations, the PLS contract needs to dominate the existing *murabaha* practices in most of the

Islamic banks. Ideally, the principles and motives of Islamic banks have to differentiate themselves from those of their traditional counterparts (Hussain et al., 2015). Nonetheless, the two types of banks tend to have certain operational characteristics in common so long as the Islamic banks do not contradict Sharia principles (Khan and Mirakhor, 1994). For instance, Islamic and conventional banks seem to have a few significant differences regarding financial risks, and there is no evidence to indicate the superiority of the former as a leading player in a dual banking system (Jawadi et al., 2015a, 2015b). The insignificant differences between the two banking systems in practice have emerged from a "worldwide Islamic resurgence", not from the derivable benefits of their modes of operation (Chong and Liu, 2009; Khan, 2010). However, this assertion negates the theoretical postulation of earlier Islamic banking literature (Darrat, 1988; Khan, 1986). Thus, this strand of the argument continues to draw the attention of academics as well as policymakers in both the conventional and Islamic schools of thought. It is theoretically clear from the early Islamic banking literature that the system is different from the conventional one and can absorb financial crisis shocks through PLS (Khan, 1986). However, as presented in Table 1, the empirical findings from three decades later lead to a different conclusion. For instance, some studies (Ergeç and Arslan, 2013; Ergec and Kaytanci, 2014) found that interest rate influences the activities of Islamic banks and depositors (Aysan et al., 2017b) in Turkey. This finding is consistent with other studies conducted in Malaysia (Akhatova et al., 2016; Kassim et al., 2009; Rosly, 1999; Sukmana and Kassim, 2010; Zainol and Kassim, 2010) and Indonesia (Kasri and Kassim, 2009; Kasri, 2010). Similarly, Charap and Cevik (2015) drew their sample from Malaysia and Turkey, covering the period from January 1997 to August 2010. They concluded that the conventional deposit rate is correlated with the PLS rate of the Islamic banks. Their findings show compromise activities that are closely related to conventional finance, and have drawn the attention of practitioners, regulators, and academics. However, analysis of the recent study in Malaysia revealed that a monetary policy indicator (the overnight operation rate) does not influencing the financing behavior of either Islamic or conventional banks in the country (Asbeig and Kassim, 2015). In addition, recent non-linear assessment on Islamic and conventional rate confirmed the decoupling trend between the two type of banking, where the former exhibit upward movement in response to the latter rate (Sukmana and Ibrahim, 2017). Interestingly, the findings are consistent with the theoretical expectations of Islamic banks but not conventional banks. An analysis of 18 GCC Islamic banks reaffirmed that the conventional interest rate has no significant relationship with the PLS rate (Yusof et al., 2015). Consequently, in a more comprehensive sample, Abedifar et al. (2013) found that Islamic banks' financing quality is less responsive to the interest rate than their conventional counterparts. Similarly, recent empirical findings regarding Islamic banks have revealed an improvement towards standardizing practices in the Islamic banking industry which conforms to the early assumptions of the system. Consequently, Sorwar et al. (2016) argued that Islamic banks' capital structure is consistent with the earlier theoretical foundation and contradict other findings (Khan, 2010; Chong and Liu, 2009). Therefore, Islamic banks operate with lower leverage than conventional banks, thus requiring a rethinking of Islamic banking's capital structure models. However, the paradigm shift necessitates further investigations since some studies have argued that a resemblance exists between Islamic and conventional banks' products (Beck et al., 2013; Bourkhis and Nabi, 2013). In consequence, the next section compares empirical studies of the two systems for a clear understanding of the performance trends in the literature.

3. The performance of islamic and conventional banks: a comparative study

Comparative reviews between Islamic and conventional banking are another aspect of surveys of Islamic finance (Zaher and Hassan, 2001). Such findings have centered on the instruments and markets, performance, and regulations, without much concern about the financial crisis or solvency risk. In the literature, we find that comparative studies between Islamic and conventional banks became an attractive area of research immediately after the recent financial crisis. Despite the recent acknowledgment of the vast uncovered areas to be surveyed in Islamic banking research, most studies (Alam and Rizvi, 2017) failed to provide an extensive comparative review of other relevant topics such as the soundness of Islamic banks after the financial crisis, and their solvency and efficiency, apart from performance and risk-taking behavior.

3.1. Performance

Assessing a bank's performance provides a clear understanding of their institutional self-sufficiency. The self-sufficiency of an institution determines the operational and financial viability of the bank without interventions, mergers, or acquisitions. This concept is closer to the Ismaili model of Islamic banking which is based on stakeholders' value maximization (Aliyu et al., 2017a; Aliyu and Yusof, 2016; Dusuki, 2008). As summarized in Table 2, previous studies have compared the performance of Islamic banking versus conventional banks in different aspects such as profitability, efficiency, capitalization, liquidity, and asset quality. For instance, Rosly et al. (2003) evaluated the profitability performance of Islamic and conventional banks in Malaysia between 1996 and 1999. The outcome of the study revealed that Islamic banks had better profitability performance in Malaysia during the study period. Regarding efficiency, Yahya et al. (2012) found no significant difference between Islamic and conventional banks' efficiency between 1998 and 2007. The findings is similar to that of Doumpos et al. (2017) on the overall financial strength of the two types of banks, whereas different results was found after decomposing the data into regions. As such, Islamic banks performed better in Senegal and the Middle East and North Africa (MENA) region, whereas conventional banks outperformed their counterparts in the GCC and Asian countries. At the same time, Doumpos et al. (2017) established that banks' financial strength is weakened as they increase in size, which supports earlier studies (Abedifar et al., 2013; Čihák and Hesse, 2010; Masood et al., 2011). In another study, Islamic banking growth in Bahrain was associated with size and the increase in customer deposits, whereas government bailouts had an adverse impact on conventional banks (Daly and Frikha, 2015). Additionally, Bukair and Abdul Rahman (2015) found that Islamic banks' size and leverage influenced their performance, but no empirical evidence related their performance with zakat and gross domestic product. Consequently, the growth of banking institutions is linked with their performance increase regarding asset quality, liquidity, and profitability. Consistent with such findings, Mirza et al. (2015) used data from Pakistan and concluded that Islamic banks promoted enhanced asset quality and stability in comparison to conventional banks. In contrast, Sun et al. (2014) revealed that low asset quality and high liabilities were more associated with Islamic banks than traditional ones. At the same time, their sample revealed the both types of banks - Islamic and traditional - exhibit lower volatility in their business growth.

Meanwhile, despite the cost-ineffectiveness of Islamic banks, they performed relatively better in profitability, capitalization, asset quality, and liquidity in the early stage of the global financial crisis (Olson and Zoubi, 2008; Bourkhis and Nabi, 2013; Beck et al., 2013; Khediri et al., 2015; Alqahtani et al., 2016). Better capitalization of Islamic banks is used as an opportunity to offset their loan loss provision procyclicality, (Soedarmono et al., 2017). Instead, the authors suggested that the banks can improve their efficiency, source of revenue and competition to enhance their performance. However, Johnes et al. (2014) presented two key findings relating to Islamic and conventional banks' efficiency. Firstly, they found no significant difference between the two banking models regarding average gross efficiency, a result that is similar to that of another study in the same industry (Mohanty et al., 2016). Secondly, they found Islamic banks to be less efficient based on a modus operandi scale but superior based on a managerial competence scale. Managerial competency is a vital requirement not only for efficiency but also for operational self-sufficiency. Therefore, Islamic banks have attained a position of self-sufficiency, thereby expanding their survival period. In another study, Mobarek and Kalonov (2014) investigated the comparative performance of conventional and Islamic banks in Organization Islamic Cooperation (OIC) countries around the time of the financial crisis. Their findings highlighted the efficient performance of conventional banks ahead of Islamic banks and vice versa in the case of financial stability. With this outcome, Islamic banks can explore more investment opportunities, whereas conventional banks must focus on maintaining a stable position. Consistently, recent studies of the dual banking environment tend to characterize Islamic banks as having inefficient performance compared with their conventional counterparts in countries such as Bangladesh (Miah and Sharmeen, 2015), Indonesia (Hardianto and Wulandari, 2016), and Malaysia (Wanke et al., 2016a,c). In the specific context of Pakistan between 2006 and 2012, Rashid and Jabeen (2016) found that operational efficiency determined the performance of Islamic and conventional banks, and that the two banking systems differed in deposits, market concentration, and overhead costs. In a detailed study, Mohanty et al. (2016) showed that country-specific variables influenced the profit and cost performance of banking activities in GCC countries.

Apart from profitability and cost-efficiency, capital diversification and management quality have a great impact on bank performance. Consequently, Sun et al. (2016) concluded that the profit and income margins of Islamic and conventional banks are determined by their capitalization diversification and management quality. They did not find much difference between these two banking systems, as they undertake the same lending and borrowing activities within a dual banking system. Meanwhile, there are other functional mechanisms of the banking system that can influence its performance strength. In regards to the functions of supervision and advisory roles between Islamic and conventional banks, Sharia boards influence Islamic banking's performance only when they assume a supervisory role and have an insignificant impact in this advisory role (Mollah and Zaman, 2015a). However, the findings of previous studies (Abdul-Rahman and Bukair, 2013; Mallin et al., 2014) conclude a significant positive relationship between Sharia supervisory board (SSB) size and the corporate responsibility disclosure index. The finding indicates the functional role of SSB is impacting the socioeconomic well-being of the society. Apart from the impact of the SSB on the socioeconomic well-being, their expertise also influences credit rating of the Islamic banks (Grassa, 2016a). The assertion indicates the creditability and credential worthiness of the SSB member increases the image of the Islamic banks at the eyes of the stakeholder, which in turn influence their investment performance and credit rating at the same time.

The Sharia supervisory board (SSB) stand is the "super authority" and "internal governance structure" of the Islamic banks (Choudhury and Hoque, 2006; Grassa, 2016a). In contrast to the Anglo-Saxon model of the single-tier board and two-tier board (executive and supervisory) of the European model, Islamic model added Sharia supervisory board as the highest governance structure of the management board (Dusuki, 2012). In addition, the SSB power permits them to prohibit the board of director from indulging into any contract that is interest related, unethical, ambiguous, excessive speculation and uncertainty, aggressive risktaking, and gambling among others (Mollah and Zaman, 2015). Despite the supremacy of the directors and Sharia board of the Islamic banks, they are not influencing return on investment deposit (Hamza, 2016). Meanwhile, moral transaction mode of the board of directors will help them to promote social justice, benevolence, and guide them towards protecting the cardinal objective of the corporation (Alivu et al., 2017b). Mallin et al. (2014) identified another functional role through controlling the prohibited activities, guide the Islamic banks towards; extending benevolent (such as zakat, charity, etc.), environmental protection, policies and regulations, employee protection and community service (Abdul-Rahman and Bukair, 2013). The super authoritative power of the SSB governance structure can influence them to put pressure and make sure Islamic banks are complying with corporate social responsibility disclosure. Therefore, SSB is making sure that Islamic banks are operating within the Sharia principles, and improve the confidence of all the stakeholders. In consequence, the religiosity of board members in Islamic banks did not have any relation to the banks' performance (Ali and Azmi, 2016). Therefore, wellfunctioning supervision will enhance Islamic banking performance, particularly support via regulatory enforcement, managerial capacity development, governance, and accountability (Aliyu, 2014; Aliyu et al., 2017a). In the case of a conducive regulatory environment for Islamic banks, the system finds it easier to operate in the less democratic nations than in Western countries with a high political profile. The assertion is consistent with the recent findings on the soundness of Islamic banks, namely that they underperformed in politically stable economies and performed better in hybrid or fully Sharia-compliant states (Bitar et al., 2017). The findings indicate differences regarding culture, regulatory adaptability, and belief that favor Islamic finance in Muslim-majority countries compared with the Western world.

3.2. Financial crisis and the soundness of islamic banks

Khan (1986) showed that Islamic banks are better able to absorb shocks, but this prediction held for only a brief period during the financial crisis. Table 3 presents findings regarding financial crisis and soundness of Islamic banks. In general, Islamic banks were less susceptible to the crisis than traditional banks (Hassan and Dridi, 2011; Čihák and Hesse, 2010). Thus most of the Islamic banks in Middle Eastern and Asian countries survived the 2007-2008 crisis despite their decreased returns to scale in operations (Rosman et al., 2014). Additionally, during the crisis period, Islamic banks in GCC countries were relatively stable and enhanced their credit growth performance compared to conventional banks (Al-Khouri and Arouri, 2016; Hassan and Dridi, 2011). Similarly, the ability of Islamic banks to maintain better capital ratios during the recent global financial crisis outperformed that of their conventional counterparts (Chazi and Syed, 2010). However, Alqahtani et al. (2016) argued that Islamic banks in the GCC performed well only in the period immediately after the crisis, whereas their postcrisis performance on a longer timescale was poor compared with conventional banks as a result of the economic downturn. Specifically, Olson and Zoubi (2016) asserted that the spread of the crisis to the real economy in 2009 pushed the profitability of Islamic banks relatively close to those of conventional banks. Their conclusion was similar to that of Beck et al. (2013), who revealed that Islamic banks are more vulnerable to economic downturns than conventional banks. On the other hand, Hassan and Dridi (2011) argued that Islamic banks exhibited poor risk management. Therefore, the Islamic banks' regulators need to intensify monitoring measures on risk management and real economic changes, as it was also found

that economic conditions determined the banks' efficiency (Rahim et al., 2013). Meanwhile, Belanès et al. (2015) realized that Islamic banks in GCC countries experienced a severe decline in efficiency 2 years after the financial crisis. The results of their study supported the earlier findings of Zouari and Taktak (2014), who demonstrated an adverse outcome concerning Islamic banks' performance and the impact of the crisis. Thus, the negative implications of the financial crisis are a general issue that affected both Islamic and conventional banks (Khediri et al., 2015). Moreover, the findings of Beck et al. (2013) concluded that Islamic banks were less cost-efficient but had better stock performance because of their asset quality and higher capitalization, which indicates their lower level of disintermediation during the financial crisis.

However, Bourkhis and Nabi (2013) investigated the effect of the financial crisis on the soundness of Islamic and conventional banks using a pair matched sample of 34 banks of each type from 16 countries. Their findings did not uncover any significant differences between the two categories of banks during the crisis. This study also revealed that Islamic banks performed better regarding asset returns and deviated from their foundational business models. Recent findings conclude that Islamic banks are more resilient than conventional banks because the latter are more volatile than the former (Fakhfekh et al., 2016). Compared with conventional banks, Islamic banks were characterized by more stringent risk strategies during the crisis as well as higher capitalization which influenced customer confidence (Hussein, 2010). Similarly, Farooq and Zaheer (2015) found that Islamic bank branches in Pakistan allocated more financing during the crisis, thereby enhancing financial inclusion. However, recent study established that the effect of the 2007–2008 financial crisis has influence on the capital, risk, and liquidity of the Islamic and conventional banks (Mahdi and Abbes, 2017). In regards to efficiency, Johnes et al. (2014) concluded that the two types of banks (conventional and Islamic) were greatly affected in 2008 and started recovering in 2009. Similarly, they also noted that Islamic bank managers performed efficiently during the crisis, whereas the operational system of conventional banks was more efficient during the same period. The effects of the financial crisis encouraged regulators to strengthen measures to foster a healthier financial environment and to provide a safety net for banks and their customers. As a customer protection strategy, banks were mandated to keep a certain amount of distress risk which could be used to settle certain liabilities. Nevertheless, this protection strategy was not unique to Islamic banks. As such, the deposit insurance premiums of publicly listed Islamic banks did not increase during the crunch period (2007-2009) of the global financial crisis (Grira et al., 2016). This finding indicates that Islamic banks had lower deposit insurance premiums during the crisis than conventional banks, which explains the basis of the differences in their business model. Therefore, regulators and policy-makers have to consider the differences between conventional and Islamic banks when designing policies for the two types of banks.

3.3. Solvency and risk

As shown in Table 4, early stability studies on the interest-free system provided empirical evidence justifying the viability of the system (Hassan and Aldayel, 1998). Likewise, various literature reviews concluded that the interest-free system could be viable and stable (Ahmed, 1989; Shaukat and Alhabshi, 2015). Furthermore, insolvency studies are considered a potential signal of the likely concurrent and future performance of an institution. Competition improves the stability of the Islamic banking system (Louati et al., 2015). The concentration of Islamic banks in the MENA region and South East Asia is regarded to be moderate with a high degree of market power (Hamza and Kachtouli, 2014). Despite the market power of the institutions, other elements such as products

and size affect the banks' solvency position. Thus, Grassa (2012) examined possible products that are closer to the default risk of Islamic banks and concluded that products under the PLS system were more prone to insolvency risk than other products in the institution. A prior study (Beck et al., 2013) considered insolvency indicators of the Z-score, returns on assets, and the equity to asset ratio as components in a stability measure, and found that the stable relationship between comparative banking analysis is not clear. The distance to the failure of the Z-score has been used to evaluate the insolvency risk of Islamic and conventional banks (Abedifar et al., 2013; Čihák and Hesse, 2010; Masood et al., 2011). These studies are similar in their findings, as they revealed that small Islamic banks have higher solvency positions than commercial banks of the same size, though the reverse is true for large Islamic banks. Consequently, a recent comparative empirical study reaffirmed the influence of size on banks' financial fragility (Ashraf et al., 2016a). However, a contradicting result was found by after applying a non-linear estimation to the stability-size relationship. The outcome indicates that after a certain threshold, large-scale Islamic banks become stable (Ibrahim and Rizvi, 2017). Therefore, Islamic banks can expand their scale and achieve a stable condition as long as the prudential regulations are in place, with close monitoring and supervision. Nonetheless, the panel analysis of Beck et al. (2013) suggested that the distance to failure is shorter for Islamic banks than conventional ones. However, recent time series analysis of Saudi Arabia has provided empirical evidence that Islamic banks contribute to system stability more than conventional banks (Ghassan and Fachin, 2016). This outcome is consistent with earlier findings within the Islamic banking literature (Darrat, 1988; Bashir et al., 1993; Bashir and Darrat, 1992; Hassan and Aldayel, 1998). It is noteworthy that insolvency risk has decreased as the financing structure has become stable (Rahman, 2010). Thus, this supported another conclusion that Islamic banks' financing structure is not reducing the effect of credit risk (Rahman and Shahimi, 2010). However, Saeed and Izzeldin (2016) investigated the default risk and profit efficiency of GCC countries (excluding Oman), Bangladesh, Indonesia, and Pakistan over the period of 2002-2010 and found an inverse relationship between profit efficiency and default risk for Islamic banks and a positive relation in the case of conventional banks. Methodologically, other studies have used survival analysis to evaluate the default risk of Islamic banks and their activities rather than the Z-score and have found different outcomes. In this regard, Kabir et al. (2015) found that Islamic banks had less credit risk using the distance to default measure and higher credit risk when using the Z-score and the non-performing loan scale. Therefore, quantifying credit and the solvency risk of Islamic banks has to be done by using an appropriate method that is different from the traditional techniques of assessing banking performance. Moreover, studies by Pappas et al. (2016) and Beck et al. (2013) revealed different outcomes regarding the distance to failure (failure risk), despite the similarity in the range of their data. In the case of Pappas et al. (2016), Islamic banks had a lower failure hazard rate than their conventional counterparts according to survival analysis in the period between 1995 and 2010. However, recent findings on the GCC countries revealed that Islamic banks have a lower survival rate than conventional banks in the region (Alandejani et al., 2017). The contrasting findings between the two studies might be as a result of differences in terms of sample size: the former covered 20 countries from various regions; the latter focused on the GCC countries. This is true in the case of Pappas et al. (2016): including Iran alone can make a difference, since all their banks are Sharia-compliant (Beck et al., 2013a,b). Notwithstanding, the failure risk signal to Islamic banks in the GCC has other implications on the quality of regulations. The notion is consistent with the recent findings that cover 170 Islamic banks of 24 countries (Aliyu and Yusof, 2017). Therefore, intensive monitoring by the regulators (central banks in

the region) will protect the Islamic bank from failure hazard. Similarly, using the same survival analysis, Baele et al. (2014) found that the failure likelihood of conventional banks making small business loans in Pakistan is twice than that of Islamic banks. Consequently, the risk profile of Islamic and conventional banks indicates the former to be less risky than the latter (Sorwar et al., 2016). The study also suggests that expected shortfalls should be considered when estimating the Islamic banks' value that is at risk.

Another strand of the Islamic banking literature stresses riskrelated issues such as risk-taking, credit risk, and risk aversion. The risks associated with the return on equities and those of mudaraba deposits are similar, despite the fact that the former tend to be twice as high as the latter (Diaw and Mbow, 2011). The PLS contracts are evidently disclosed their risk profile compared to conventional ones in recent findings (Mahdi and Abbes, 2017). Thus, this presents the governance structure of Islamic banks that differ distinctively compared to conventional banks. As argued by Mollah and Zaman (2015) Islamic banks differences with conventional banks is beyond the abolition of interest rate, rather Sharia principles that are being upheld through monitoring and supervision of the SSB stand as another essential feature of the system. The corporate governance board of the Islamic banks disallowed them to indulge into transactions that are complex, which in turn may expose them to external shock as a result of either gambling, higher uncertainty or other prohibitive contracts. As a result, the system under PLS arrangement is less prone to insolvency and financial shocks (Khan, 1986). At the time when conventional banks are operating based on interest dealing of bank-customer relation, Islamic banks are expected to serve as investor-entrepreneur relations and share the profit and loss on the agreed proportion (Alivu et al., 2017b). Thus, the system provides financial moral dealings that is tantamount to solve economic difficulties through the functional role SSB particularly within the premise of Islamic banks (Mollah et al., 2016). The functional role of SSB found to be positively influencing Islamic banks performance (Mollah and Zaman, 2015). Even though some Islamic bank products are complex in nature, some business mechanisms and governance structures allow Islamic banks to undertake higher-risk transactions, achieve better performance, and maintain superior capitalization than conventional banks (Mollah et al., 2016). It is clear that capitalized Islamic banks pursue safer policies and are less risky because of higher liquidity and low non-performing loans than conventional banks (Pellegrina, 2012). Chazi and Syed (2010) argued that having a higher capitalization ratio and avoiding of uncertain transactions shielded Islamic banks from the severe effects of the recent financial crisis. However, Ariffin et al. (2009) confirmed that Islamic and conventional banks face similar kinds of risk despite having differences in their risk levels. In this respect, different regulations have to be developed for various models of banking, even for a particular risk exposure. Despite Islamic banks in Bahrain being surrounded with operational, liquidity, and settlement risks, these banks outperformed conventional banks in the understanding and management of risk (Hussain and Al-Ajmi, 2012). Similarly, the credit risk management of Islamic banks in the UAE was found to be better than that of conventional banks, indicating a further improvement in risk management techniques (Masood et al., 2012). In another study, Abedifar et al. (2013) found that small Islamic banks in majority Muslim states had a lower credit risk than conventional banks of similar size. However, a recent study found that size had a significant negative influence on Islamic banking profitability compared with conventional banks, whereas all risk measures to credit, impairment, and stability did not converge between the types of banks (Olson and Zoubi, 2016). The finding supports that of Beck et al. (2013), as they conclude that larger Islamic banks are less profitable than small banks in the same industry. Despite this, other studies (Bougatef, 2015; Rashid and Jabeen, 2016) have suggested that bank managers should improve their credit and financial risk management in order to achieve operational stability.

In Malaysia, How et al. (2005) associated higher interest rate risk with lower liquidity and credit risks to Islamic banks in their study covering 1988-1996. Meanwhile, the credit risk exposure in MENA countries was less for Islamic banks than for their conventional counterparts (Srairi, 2013). Consistent with these findings, data from GCC countries over the period of 2003-2010 established that Islamic banks were better capitalized and more profitable, and had lesser credit risk than conventional banks (Khediri et al., 2015). Although, most of the recent Islamic banking literature focuses on the credit risk while giving little attention to other risk typologies, such as operational risk (this inherent to all process of the business) and market risk (Abdullah et al., 2011). In consequence, Sharia-compliance and legal risk are considered as other forms of operational risk (Archer and Haron, 2013). Additionally, Chapra and Khan, (2000) identified other risk related to Islamic banking operations; which include fiduciary, price, the rate of return and displaced commercial risks. Meanwhile, equity, investment, and liquidity risks are other additions to the earlier mentioned categories of operational risk (IFSB, 2005), in which reputational risk is not considered in this context. However, reputational risk has a different classification to either Sharia compliance related risk or operational risk in another study (Abdullah et al., 2011). Operational risk is given due consideration in assessing Basel II capital requirement other than credit and market risk. Basel II is argued to be one of the most suitable capital regulatory requirement for Islamic banking operations (Dusuki, 2012). Nonetheless, Zins and Weill, (2017) found that Basel II expands the risk gap between Islamic and conventional banks, and increases the tendencies of Islamic banks' instability position. The findings have implications on the earlier conclusion that Basel II is closer to Islamic banks context. Meanwhile, Basel III introduces "net stable funding ratio NSFR and liquidity coverage ratio LCR" (Ahmed, 2014), even though, increase in capital may tend to induce Islamic bank to invest in the riskiest asset (Basher et al., 2017). Ashraf et al. (2016b) asserted that NSFR has the potential of improving the financial stability of Islamic banks. At the same time, the authors acknowledged the endorsement of the Basel III by the IFSB after some adjustments since the standard was designed to accommodate risk in relating to complex debt transactions, which in principle Islamic banks are restrained from them. Notwithstanding, future studies can explore more of the Basel III standards about the two types of banks. Consequently, the operational risk to Islamic banks' performance is immensely essential, limited studies pay attention to it, and in-depth evaluation using a large sample of various jurisdictions are required.

However, an increase in capital influenced Islamic banks' risk positively, and this efficiency moved in the same direction as the risk of conventional banks in Bangladesh (Miah and Sharmeen, 2015). Similarly, a comparative analysis between traditional and Islamic banks also revealed that the two types of banking were not very different in terms of financial risk (Jawadi et al., 2015a). It is clear that equity investment and capital adequacy differ across regions, and that privately owned Islamic banks are more prompt in protecting their shareholders against commercial risk through capital buffers than state-owned Islamic banks (Daher et al., 2015). Enhancing capital adequacy reduces banks' stress scenarios and has the potential to improve the soundness of Islamic banking's PLS transactions (Alam, 2012; Hassan et al., 2016; Muljawan et al., 2004). Thus, it has come to be understood that adequate capital and sound risk management practices will strengthen the Islamic banking industry. Al-Khouri and Arouri (2016) recommended implementing risk-based supervision to control the credit growth risk that is associated with weak banks and to mitigate potential risks from early warning signals. At the same time, Islamic banking regulators must provide other Sharia risk management strategies that do not mimic conventional banks, since the two models have different objectives (Louhichi and Boujelbene, 2016). More specifically, during the crisis, Islamic banks' strategy towards risk was stricter than that of conventional banks in GCC countries (Hussein, 2010). Since PLS products may involve other elements of risk-taking behavior, the participation of such investment holders will reduce the impacts of the hazards. Given this, Louhichi and Boujelbene (2016) claimed that Islamic banks were less burdensome regarding credit risk, since they shared profit and loss with investment account holders. Meanwhile, insolvency risk is influenced by the income structure of Islamic banks, since their depositor and shareholder structure constitutes a higher proportion of the industry ownership (Grassa, 2016b). However, Al-Khouri and Arouri (2016) found that ownership (foreign and government) matters for Islamic banks, because government-owned banks, in general, were susceptible to credit growth and stability in GCC countries. Hence, other studies prioritized banking performance in relation to ownership structures. For instance, joint investors' efforts (family and state) influenced banks' performance, whereas banks with foreign and institutional owners performed poorly (Zouari and Taktak, 2014). State-owned banks had relatively higher risks than family-owned banks, which indulged in lower-risk businesses (Srairi, 2013). This finding supports earlier assertions that Islamic banks are willing to take risks (Ismail and Sulaiman, 2008). However, a large number of depositors and shareholders tend to reduce insolvency for less risky investment decisions that have the potential to yield a higher shared income. Along similar lines, Hamza (2016) linked high risk taking and morally hazardous behavior to investment accounts and PLS assets of Islamic banks, and argued for the role of investment deposits in banks' corporate governance mechanisms. This view is consistent with the earlier framework of Islamic corporate governance which, among other features, made it different from the conventional structure (Dusuki, 2012). Investment account holders' funds can be efficiently managed as long as the banks enhanced the transparency of their disclosures on profit disbursements (Lahrech et al., 2014). Therefore, strengthening transparency, the governance structure, and risk management systems has the tendency to reduce the severe effects of excessive risk taking that arise from PLS investment accounts (Hamza and Saadaoui, 2013). Banks with comprehensive corporate governance compositions tended to have a reduction in agency problems. However, a recent study revealed that Islamic banks utilized the dividend agency model to reduce agency problems as well as the volume of possible risks to the industry (Athari et al., 2016).

4. Efficiency of islamic banks

Islamic banks are established on the foundation of Sharia principles to intermediate between the surplus and deficit agents of an economy. Banks are a source that supplies funds to finance individual, private, public and government investments, and their capital allocation and financial decisions stand as another driver that supports the economic growth of a nation. Thus, banks' functions depend on their ability to manage both tangible (physical assets, labor, and capital, among others) and intangible (managerial skills and competence, reputation, intellectual property, etc.) inputs to achieve the required output. In general, studies rely on financial information such as cost, revenue, inputs and output, and profit, among others, to assess the banks' efficiency (Berger and Humphrey, 1997). As the Islamic banks' growth is rapidly soaring, it is imperative to determine their profit and cost-efficiency. The survival of Islamic banks relies on their strength to manage costs efficiently and to maintain higher revenues, particularly in the dual banking system (Iqbal and Molyneux, 2005). Therefore,

determining the overall efficiency of Islamic banks can guide policymakers to improve managerial performance, and investors and clients to make other decisions relating to investment and service quality. The efficient bank is expected to continuously improve profit by providing quality services at an affordable price, and to retain enough liquidity for intermediation with adequate regulatory capital that can absorb risks (Berger et al., 1993). A bank can be inefficient because of poor risk and managerial competency, which might lead to higher operating costs and lower profit.

As illustrates in Table 5, several approaches have been used to measure banks' efficiency, which can be classified as either parametric and non-parametric (Berger and Humphrey, 1997). The non-parametric approach of data envelopment analysis has been used in most of the Islamic banking literature for assessing efficiency (Sufian, 2007; Emrouznejad and Anouze, 2010; Yahya et al., 2012; Alam, 2013; Ismail et al., 2013; Johnes et al., 2014; Sufian et al., 2014; Rahim et al., 2013; Rosman et al., 2014; Kamarudin et al., 2014; Mobarek and Kalonov, 2014; Belanès et al., 2015; Shawtari et al., 2015; Daly and Frikha, 2015), although some studies incorporated the parametric approach of stochastic frontier analysis (Mokhtar et al., 2006; Pellegrina, 2012; Abdul-Majid et al., 2010, 2011; Miah and Sharmeen, 2015; Hardianto and Wulandari, 2016; Shaban et al., 2014; Olson and Zoubi, 2011; Louati et al., 2015) and recently a few studies employed "Technique for Order Preference Similarity to the Ideal Solution" (Wanke et al., 2016c, 2016b). Specifically, studies evaluating Islamic banks' efficiency performance dominate most of the literature in this section. For instance, inter-regional comparisons revealed that Islamic banks in Asia, particularly those in GCC countries, were relatively efficient compared with those in MENA countries (Rahim et al., 2013). Despite the preservation of Islamic banks' operational efficiency as a result of profitability and capitalization during the financial crisis, most banks operated at a decreasing return to scale (Rosman et al., 2014). Likewise, efficiency comparisons revealed that domestic banks in Malaysia were more efficient than foreign banks (Wanke et al., 2016b, 2016c). Furthermore, Wanke et al. (2016c) revealed that the high cost of Islamic banks reflected their inefficiency levels, which is similar to earlier findings (Hassan, 2006; Yudistira, 2004). On the technical side of efficiency, Alam (2013) found that strict measures and supervisory power play significant roles on Islamic banks. In contrast to the findings for a larger sample, Louhichi and Boujelbene (2016) revealed that the bad management hypothesis was relevant in explaining the conventional banking behavior in 10 OIC countries, while the moral hazard and skimping hypothesis can be found for the two types of banks.

In Malaysia, full-fledged Islamic banks were relatively more efficient than window banks, though foreign Islamic window banks were more efficient than domestic banks (Mokhtar et al., 2006). Similarly, local Islamic banks in Malaysia were found to be more efficient and profitable than foreign banks (Sufian, 2007). A subsequent study revealed the improvement of foreign banks relative to local banks in terms of revenue efficiency (Sufian et al., 2014). In comparison, Yahya et al. (2012) found local Islamic and conventional banks in Malaysia to be similar in terms of efficiency. The paradigm shift from lending to investment practices enhanced the efficiency and profitability of conventional banks over the period of 2001-2011 (Pellegrina, 2012). Therefore, the assets-based practice of Islamic banks had the effect of yielding the double benefit of efficiency and profit simultaneously. An analysis of the efficiency of MENA and Asian countries indicated that Islamic banks from GCC countries had higher efficiency scores than those from MENA countries (Rahim et al., 2013). However, within GCC countries, Islamic banks were less efficient than conventional banks (Kamarudin et al., 2014). In contrast, Islamic banks exhibited efficiency in Yemen whereas conventional banks were more stable (Shawtari et al., 2015). However, during the crisis, most GCC Islamic banks were found to be relatively efficient, with later reductions in efficiency in 2009 (Belanès et al., 2015). In contrast, a more comprehensive analysis of 553 banks from 24 countries found that the high efficiency of Islamic banks was related to the higher market share of Islamic banks (Abedifar et al., 2016). This is consistent with the earlier assertion of Emrouznejad and Anouze (2010) who explained that size and mode of operation influenced bank efficiency, which also varied depending on market share. Similarly, findings from an Indonesian comparative study revealed that size and credit risk were inversely related to efficiency (Hardianto and Wulandari, 2016). This implied that the larger the bank, the higher the efficiency as a result of economies of scale (Ismail et al., 2013). Consequently, another efficiency study of 111 banks found that Islamic banks scored a relatively higher return to scale than conventional banks (Abdul-Majid et al., 2010). In summary, the findings of the comparative efficiency studies are mixed, despite Islamic banks being suggested to improve risk management and credit risk, and minimize transaction costs to achieve the full scale of efficient performance.

However, the first-generation scholars admitted the importance of the Islamic banks' performance assessment for survival and continuity; at the same time, they also prioritized *maqasid* realizations as a prime goal to achieve social well-being (Aliyu et al., 2017a; Dusuki, 2008). Therefore, next the section reviews empirical studies on the Islamic banking *maqasid* objective, financial disclosure, and inclusion.

5. Maqasid, disclosure, and financial inclusion

The fundamental normative aspiration of Islamic economics and finance is to provide a system that delivers social justice and prosperity. The system is designed to create and distribute wealth fairly through the intermediary role of Islamic banks. Therefore, one of the cardinal objectives that established Islamic banks is cherished within the framework of the Sharia objective that aims to promote social well-being. The realization of this assertion can be traced through Islamic banking activities that are compatible with the *maqasid* objective, with support from financial disclosure and inclusiveness.

5.1. Maqasid of islamic banking

Apart from the financially related motives of Islamic banks (Ismail, 2002), financial institutions are expected to achieve certain social objectives that will impact social well-being (Chapra, 1992; Laldin and Furqani, 2013a). The aim of establishing Islamic banks differs from the conventional banks' motives because the former aim to achieve the magasid objective (Dusuki, 2008; Laldin and Furgani, 2013b). Magasid Shariah is a broad concept that goes beyond the transactional relationships of the financial institutions (Bedoui and Mansour, 2014). Nonetheless, Islamic banks have other roles to play in establishing the objectives of Sharia. In any particular context, there are three major elements attached to Islamic banks' maqasid realization⁷. These include educating individuals, establishing social justice, and attracting public interest (Amin et al., 2015; Chapra, 2008; Mohammed et al., 2008). Reviewing the literature regarding magasid, disclosure and financial inclusion in Table 6, one can see the few empirical studies in this area. Despite the limited amount of empirical literature that explores the Islamic banks' achievement of maqasid Sharia, researchers have come to other conclusions in this regard. For instance, Antonio et al. (2012) revealed that the magasid index performance of Islamic banks in Indonesia superseded that of Jordanian banks. In another study, Asutay and Harningtyas (2015) concluded that the 13 Islamic banks they investigated failed to fulfill the sufficient requirements for

maqasid Sharia, and discovered different orientations across banks in various locations. Moreover, in the case of Malaysia, Mohammad and Shahwan (2013) found that Islamic banks more inclined toward the profit motive than fulfilling *maqasid*, which contradicts recent findings from the same location (Mohamad et al., 2016).

Empirical studies on Islamic banking's magasid performance are inadequate for predicting the future activities of the institution. Despite the proposed mathematical modeling of Bedoui and Mansour (2014) and its subsequent application by Asutay and Harningtyas (2015), some of the indicators of the magasid framework are not disclosed by most Islamic banks' reports (Antonio et al., 2012). As a result, Aliyu et al. (2017a) suggested standardizing a unified content for Islamic banks' reporting systems, which will capture both financial and non-financial information relating to the *magasid* framework. In this regard, revisiting the existing index for assessing the magasid of a financial institution is necessary, since some of the concise indicators exhibited in Bedoui and Mansour (2014) are invariably beyond the ability of the institution to achieve. However, the maqasid index developed by Mohammed et al. (2008) is closer to the financial reporting content, but some elements used to construct the index are not frequently available in the banks' reports. Therefore, formulating a magasid index that considers the theoretical underpinning coupled with the available reporting indicators will pave the way to accounting for the all relevant components of magasid (Amir, 2014).

5.2. Disclosure and financial inclusion

The second objective of Islamic banking aims to enhance the well-being of society, but this is hard to assess just by looking at indicators from institutions' financial reports. This is evident in the context of Islamic Bank Bangladesh, as the bank does not provide complete disclosure on socio-economic well-being indicators and has also relied heavily on debt-based products (Belal et al., 2014). Islamic banks are encouraged to fulfill their corporate social responsibility requirements by enabling social development (Nor and Hashim, 2014). Some empirical assessments have revealed the inability of Islamic banks to provide the required socioeconomic justice to society (Mohd Nor et al., 2016; Nor and Asutay, 2011). However, a recent study on corporate social responsibility disclosure and financial inclusion established an interesting link with Islamic banks' performance. For instance, Platonova et al. (2016) found that the corporate social responsibility activities of Islamic banks in GCC countries had a long-term positive effect on their financial performance. In another scenario, Sharia board size influenced the disclosure of social responsibility, which also had a significant impact on the financial performance of Islamic banks in 13 countries (Mallin et al., 2014). This finding sends a strong signal that the Islamic financial disclosure of social responsibility will, in turn, result in an increase in a bank's financial performance. However, Nobanee and Ellili (2016) found corporate sustainability disclosure to have a positive influence on traditional banks' performance but no effect on Islamic banks' performance in the UAE. Another study from Asia explicitly indicated that out of the total sample of seven banks, four were found to have a gap between ideal and communicated ethical characteristics (Zaki et al., 2014). Therefore, regulators have to work towards increasing the level of voluntary compliance with disclosure reporting.

Experimental evaluation has shown the promising contribution of profit-sharing contracts in the context of microfinance in both Muslim and non-Muslim countries (El-Komi and Croson, 2013). Recent findings assert that Islamic banks in Turkey are skewed towards financing small and medium enterprises and responses to monetary rate changes (Aysan et al., 2017b). The implication of this findings is of interest to regulators: they have to be aware that Islamic banks' performance has a direct effect on employment generation through labor participation in domestic productions; otherwise, it leads to an increase in the unemployment rate when small and medium enterprises SME financing is deficient. Similarly, Abedifar et al. (2016) reported that Islamic banking practices reduce poverty and inequality in their study on the 22 Muslim countries. This finding indicates that despite the small size of the Islamic banks compared with their conventional counterparts, they engage in real economic activities. Nonetheless, a significant proportion of the poor population is financially excluded in the OIC members' countries. Mohieldin et al. (2012) identified exclusion gaps that can be bridged by the numerous Islamic financial instruments of microfinancing. This is clear in a recent empirical assessment of OIC countries that revealed that less than 10% of the poor have financial access to microfinance banks in the 26 OIC member countries (Shaikh et al., 2017). Consequently, recent findings have concluded that the size of the business and legal status, and government and domestic ownership are the primary determinants of firms' financing constraints in 42 Islamic countries (Mertzanis, 2016). Apart from bank-specific indicators, Mertzanis (2016) identified other constraining indicators, such as institutional quality, and religious and social heterogeneity, among other aspects. The religious inclination of the majority population in OIC member states indicates the potential of Islamic microfinance to have an inclusive objective by complementing the financial services for the poor (Ashraf et al., 2014). Therefore, it is expected that Islamic banks will support the real sector of the economy by enhancing entrepreneurial financing, which, in turn, has a multiplier effect on human development (Chapra, 1992, 2000). Interestingly, recent findings have shown that a significant portion of SME financing in Turkey is supported by Islamic rather than conventional banks (Aysan et al., 2016a). This scenario is very similar to the case of small business financing, where Islamic banks benefit more from many inter-transactional relationships with small firms, as opposed to conventional banks, which focus instead on financing large corporations (Shaban et al., 2014).

Islamic banks with risk-averse behavior are welfare-neutral regarding deposit and financing, whereas the loans of conventional banks are pro-welfare and neutral towards deposits (Azzam and Rettab, 2013). The situation is not the same for Malaysia where non-financial firms were found not to use Islamic banking products as expected, since the banks focus more on *murabaha* rather than profit and sharing (Minhat and Dzolkarnaini, 2016). In summary, it is suggested that Islamic banks have to increase their outreach performance in order to achieve their social objectives and long term growth, which is consistent with recent conclusion on the UK Islamic banks (Riaz et al., 2017). Meanwhile, Abdelsalam and El-Komi (2016) identified other areas that need the serious attention of researchers in Islamic finance, including financial inclusion with a particular focus on non-manufacturing and small firms, particularly those operating in rural areas.

Despite the ethical compliance and inclusiveness that is expected from every Islamic bank, the development of regulations to protect the interests of all stakeholders (investors, customers, depositors, and the general public) is inevitable. Although compliance with Islamic financial regulations is another segment that cannot be concluded without further investigation, the extent of the regulation functions and the role of the regulators towards enforcement has been investigated. Therefore, the next section reviews the literature on Islamic banking regulations.

6. Islamic banking regulations

The regulations governing Islamic banking transactions are entirely different from those covering conventional counterparts in principle. As a summary of findings of Islamic banking regulations is discussed in Table 7 of this section, Islamic banks are subject to other Sharia restrictions on certain prohibited exchange relations, whereas the two type of banking shares common practices for Sharia-permissible activities (Karim, 2001). Nonetheless, Hassan and Dicle (2005) suggested that Islamic banks should comply with international regulations that are compatible with Islamic jurisprudence so they can compete globally. Thus concerning the legal and regulatory framework of the banking system, there is diversity among different geographical locations in the world which allow other countries to operate a dual banking system (Zaher and Hassan, 2001). At the same time, variations in cross-border regulations lead to different investment accounting procedures (Karim, 2001). With this in mind, unification of the financial reporting standards of Islamic financial institutions aims to strengthen cross-border transactions and enhance comparability. As such, the AAOIFI was established to fill other gaps that exist between the conventional and Islamic financial systems (Abdel Karim, 1995). For instance, the treatment of zakat distributions, reserve funds for profit smoothing, and protection of unrestricted investment account holders are some of the features missing within the conventional frame of the International Financial Reporting Standards. Consequently, the IFSB was established to provide standards for ensuring the soundness and stability of Islamic financial institutions. The Islamic financial standard-setters apply a rigorous procedure for developing new standards, and reviewing and adopting other international standards that conform with Sharia principles. However, despite the provisions of the Islamic financial standards, voluntary adoption is the most common practice of Islamic finance-practicing countries because of a lack of enforcement. The Islamic financial standard-setters are still in the process of developing other guidelines, technical notes and principles that leave other issues unresolved, such as the permissibility of using the conventional framework for Lender of Last Resort (LOLR) issues, regulations on money laundering, and the classification of investment account funds. The tremendous need for financial stability has stimulated the IMF staff to propose that regulators should consider Sharia tenets and other financial conditions for any country supplying conventional LOLR services to Islamic banks, standards on deposit insurance schemes, and a design for a resolution framework (Shabsigh et al., 2017). Therefore, Islamic financial standard-setters have provided a clear structure for the Sharia LOLR to ease ambiguity for those using the conventional framework within Islamic finance institutions.

Earlier policy papers suggested that Islamic banks should strengthen their regulatory framework coupled with adopting the CAMEL rating in supervisory assessments (Errico and Farahbaksh, 1998; Sole, 2007). Similarly, recent recommendations made to Islamic banks have focused on the need to strengthen their investors' protection, legal matters, and a corporate and regulatory framework with independent supervisory roles to ensure accountability in the system (Mejia et al., 2014; Song and Oosthuizen, 2014). However, a recent study argued against the power of private monitoring and supervision roles, actively supporting monitoring with stringent conditions to achieve stability (Ibrahim and Rizvi, 2017). The acceptability and widening coverage of Islamic financial institutions are increasingly advancing in the sense that they require other regulatory reforms. Recent findings support the need for stringent regulations and that capital requirement conditions enhance the stability-size relationship as well as the soundness of the banks (Ibrahim and Rizvi, 2017; Louhichi and Boujelbene, 2017). Therefore, the need for Sharia compliance, capital adequacy requirements, market discipline, liquidity monitoring, an effective insolvency framework, and a review of supervisory guidelines is consistent with the earlier endorsement that is expected to enhance capital utilization, growth, and the stability of the system (Chapra and Khan, 2000). In short, Song and Oosthuizen (2014) suggested that developing a functional financial infrastructure, managing concentration risk, having uniformity in interpreting Sharia, and cross-border stability for Islamic banking transactions. Meanwhile, consumer protection is the cardinal interest that will safeguard the rights and confidence of the investors and enhance stability in the system (Lukonga, 2015). Additionally, Hussain et al. (2015) emphasized the need for Islamic bank regulators to provide functional money market coupled with short-term instruments that will ease Islamic banking intermediation and reduce the short-fall in liquidity.

However, Islamic banks in Bangladesh operate without any Islamic banking regulations or any Islamic inter-bank money market (Ahmad and Hassan, 2007b). Liquidity instruments and the infrastructure need to be developed for Islamic banks so they can fulfill the Basel III requirements (Ahmed, 2014). Providing the necessary infrastructure such as Islamic money and functional security markets will enhance the interbank transactional ability of Islamic banks and accommodate their requirements. It is worth noting that higher capital requirements reduce banks' risk, whereas supervisory power does not influence the risk-taking behavior of either Islamic or conventional banks (Alam, 2012). Similarly, capital requirements have a positively influence on the deposit and financing behavior of 14 OIC members' countries (Abdul Karim et al., 2014). In the case of Turkey, Hassan et al. (2016) found that Islamic banks were severely affected by a decline in the capital adequacy ratio compared with conventional banks. These findings indicate that Islamic banks in Turkey are more sensitive to regulatory capital decreases than conventional banks. Therefore, regulators have to enforce close supervision to ensure the soundness of the banks. Arguably, capital adequacy requirements will improve the soundness of Islamic banks (Muljawan et al., 2004). According to similar findings, the net stable funding ratio is required to establish the financial stability of Islamic banks (Ashraf et al., 2016b). Intensive supervision and regulatory functions are also required for price setting because of the degree of competition in a dual banking system. An earlier study suggests that dual banks can compete without jeopardizing financial stability (Čihák and Hesse, 2010). Nonetheless, recent evidence has raised concerns about price setting where conventional banks peg higher a deposit rate in Muslim majority countries (predominantly with Islamic banks) and increase it when it faces lower market power (Meslier et al., 2017). The situation strongly influences the competition of Islamic banks, and this can affect their Sharia compliance and financial stability. With this in mind, regulators have to intermediate to protect fair play in the market and to ensure financial stability. Another segment of a supervisory role that protects depositors' right through insurance was found to be effective in providing market discipline among the Turkish Islamic banks Aysan et al. (2017a). Consequently, the technical efficiency of Islamic banks is an integral function of strict operational monitoring and compliance with regulations with higher supervisory power (Alam, 2013). Therefore, it is imperative for Islamic banks regulators to strengthen their efforts towards monitoring and evaluating their compliance performance and to uphold customers' confidence.

7. Conclusions and future research

The primary purpose of this survey is to provide a comprehensive review of the empirical literature on Islamic banking. The study is expected to increase the understanding of the policymakers, researchers and non-professionals in the area of Islamic banking activities. We find that earlier studies were fundamentally concerned with normative judgments, descriptive analysis, and theoretical development coupled with evaluating country experiences. In the 1980s, empirical work began to prove the earlier theoretical postulations. Studies were mostly focused on Islamic banks' performance and efficiency, comparative investigations versus conventional banks, and distance to failure analysis. Recent studies have broadened the field by covering other topics such as the financial crisis, solvency, disclosure, and financial inclusion. Despite previous critiques, Islamic banking is progressing toward strengthening its theoretical foundations. Empirical studies have been mostly tailored towards analyses of institutional performance without sufficiently considering the social impacts. Although it is imperative to investigate the strength of Islamic financial institutions, it is also necessary to analyze Islamic banking products with society's well-being in mind (Chapra, 2000). Therefore, the key findings of this survey are summarized as follows:

- 1. Some studies show that Islamic banks have few significant differences from conventional banks in practice. Most of the empirical literature that has focused on Islamic banking practices in the last two decades claims that the institutions have diverged from the ideal PLS model to lease and sales-based contracts. According to these studies, the interest rate is one of the determining factors influencing Islamic banking activities, rather than real economic activities. Strong effort is required to close the difference gap through policy development. Risk and reward sharing contracts are the unique life-force of Islamic banking that can promote the shared prosperity and achieve optimal social well-being.
- 2. The implementation of financial inclusiveness in Turkey shows that the participation of labor force in increasing the national product has a direct link with the banks performance. With this, the socio-economic condition of the population in the country changes with the banks performance. Therefore, regulators have to take note of the implications when the banks performance is low, as the employment rate will be affected negatively. At the same time, managers can be motivated by risk and reward contracts, as these reduce the uncertainty of risk and enhance stability.
- 3. The review traces back to the earlier empirical studies that support the previous analytical work of Khan (1986) which expressed the viability of the Islamic interest-free monetary system because the Islamic system is more able to absorb shocks, especially during a financial crisis. In the same vein, studies appearing shortly after the global financial crisis reaffirmed the resilience of the Islamic financial system compared with the conventional one. Nonetheless, others argue that the spillover of the crisis manifested in the Islamic banking system 2 years after the start of the crisis. Islamic banks are not immune from the crisis shock, as some studies have argued. Therefore, policy-makers have ensured strict compliance with Sharia tenets to uphold the stability of the system.
- 4. Even though Islamic banks are labeled cost-inefficient, they were found to be superior regarding the managerial competency scale and profit efficiency in a few studies. Sustaining managerial skill is an essential tool for long-term survival of the system. Therefore, Islamic banks should not do away with the recommendations for continuing to improve their managerial skills regarding risk management and standard compliance issues, and should utilize technology to minimize the cost of operations. At the same time, training on monitoring and evaluation, and appraising investments is required to augment the needs of the industry (Aliyu et al., 2017a; Cobham, 1992; Khan, 1991). The industry needs ongoing capacity development because of frequent changes in global financial practices and modalities.
- 5. Most empirical literature on Islamic banks use the indicator that compare buffer (capital and returns) with return volatility as a distance to failure measure rather than the Altman

Z-score, which was widely used in earlier literature (Zaabi, 2011). Thus our findings show that small Islamic banks have higher solvency positions than commercial banks of the same size. However, recent stability-size relationship studies suggest that Islamic banks should expand their size, as they can be stable when stringent regulations, monitoring, and supervision are adhered to.

- 6. It is acknowledged that Islamic banks across borders operate the same brand products with different structures, and some products are rebranding the conventional ones without substantial Sharia-compliance (Beck et al., 2013). Although Sharia restrictions reduce Islamic banks risky behavior, insolvency risk is influenced by the income structure of Islamic banks, because the depositor and shareholder structure of Islamic banks constitutes a higher share of the industry ownership. Therefore, Islamic banks management should improve their risk management strategies to maintain a high level of solvency.
- 7. Disclosure has a positive effect on the long-term performance of Islamic banks in the GCC countries, whereas more than 90% of the poor population is excluded from microfinance access in OIC member countries. The social objective that is expected to derive from Islamic banking is not being achieved. With this in mind, Islamic banks should focus on rural SMEs to drive those with an entrepreneurial mind out of abject poverty. The spirit of inclusiveness should be a priority in order to achieve the *maqasid* objective.
- 8. The attention of international regulatory agencies has been drawn to the growth of Islamic banking, especially complex transactions, which might have an impact on financial stability. As a result, the IMF emphasizes the frameworks and standards that will enhance best practice. The IMF has recognized the core principles of Islamic banking regulation. Similarly, the IMF has advised Islamic standard-setters to provide guidelines on deposit insurance schemes, the LOLR, money laundering, and a resolution framework.
- Despite the growing performance of a dual banking system in some countries, monitoring and supervision need to be intensified, especially regarding a competitive environment for fair price setting.
- 10. In summary, the growing trend of the empirical literature on Islamic banking research is conducted using a range of diverse methodologies like descriptive and correlational analysis; linear regression; t-tests, Chi-square tests, and Kruskal-Wallis tests; data envelopment analysis, the stochastic frontier approach and heteroskedastic stochastic frontier approach; logistic, Probit, and Tobit regression; neural network and Technique for Order of Preference by Similarity to Ideal Solution; panel regression (fixed and random effect); cointegration test and Granger causality; two- and three-stage least-squares models; vector error correction; seemingly unrelated regression; generalized method of moment; Poisson regression; survival/duration analysis; fractionally integrated exponential generalized autoregressive conditional heteroskedasticity models; dynamic slack-based model; Markov chain Monte Carlo; and the generalized linear mixed model.
- 11. The empirical studies used for this review covered the data period between 1960 and 2014. Few studies included other sample countries outside the GCC region, MENA, and South East Asia.

Based on the current state of Islamic banking literature as documented in this survey, Table 8 presents suggestions for future research.

Table 8Directions for future research.

Themes	Sub-themes	Lessons learned	Future studies
Islamic Banking Theory and Status	Principles and theories	 The trend of Islamic finance literature in the last three decades shows that most of the studies on Islamic banking have concentrated on empirical findings without providing insights into the analytical framework. Similarly, a couple of studies conclude that the capital structure of Islamic banks differs from that of conventional banks, which calls for developing new capital structure models that are closer to the theoretical postulations of Islamic financial transactions than those nested within the leverage-based approach (Sorwar et al., 2016). 	 A dearth of analytical and theoretical studies was also found in the extensive body of literature on Islamic banking and finance, which concurs with the findings of previous studies (Ibrahim, 2015; Masih et al., 2016). However, empirical investigations using real-life data are also required, especially on Sharia compliance heterogeneity and market segmentation (Berg et al., 2016). Islamic financial studies have other unexplored areas that require further examination to bridge the gap between the theoretical foundations of Islamic banking and practical reality. For instance, the claim that Islamic banking has deviated from its earlier underlying theory by adopting the products of conventional banks deserves more in-depth investigation from different geographical locations. Since the second strand of the recent empirical findings concurs with earlier findings on Islamic banks, which claim that Islamic banking that Islamic banking that real economic activities rather than the conventional interest rate. Thus, developing Islamic capital structure models that focus on the foundational theories and social considerations of Islamic finance is another gap that requires utmost attention.
	Islamic banks status	 Nowadays, Islamic banks are profit oriented than socially motivated, and reaches beyond the Muslim majority countries. 	• The penetration of Islamic banks to Muslim minority countries draw the attention of academicians and policymakers in those countries to publish in the high impact journals. There is a need for studies to explore the jurisdictional concentration of Islamic finance and banking research, which hinder our understanding to know the affiliated institution with higher impact research in the area. Investigating Islamic banking and finance impact research will help to determine institutional metric.
Paradigm and Paradigm Shift	The PLS Paradigm	 PLS paradigm is promising towards achieving socio-economic objectives, financial stability, and resilience, particularly during a crisis. 	• Earlier studies provide the analytical and real data analysis on the PLS, and conclude that it will lead to stability, resilience during a crisis and improve social well-being. Some recent findings indicate that Islamic banks are affected 2 years after the crisis when the impact penetrate to real economic sectors. Studies are required to provide avenues for Islamic banks to hedge against the effect on the real economic downturn, achieve stability, and social objective.
	The Paradigm Shift	 Studies highlight that Islamic banks prefer debt-based financing to equity-based financing due to PLS contractual constraints. 	• New innovative PLS arrangements and models that coincide with Sharia tenets are required, which are expected to protect all stakeholders in the industry.
Islamic banking Practice	Decoupling practice	• Recent findings challenge the earlier conclusions that Islamic banks' rate is mimicking that of the conventional banks.	• We, however, do not know whether this differences will influence the performance of Islamic banks to achieve a better social objective or not.
Islamic banks performance	Financial crisis and soundness	• Recent studies have focused on the financial crisis, solvency, and Islamic banks' performance, inclusion, and financial disclosure, but research has overlooked green financing and environmental sustainability projects funded by Islamic banks. Green investments add value to humanity, and Islamic banks should scrutinize their green financing activities.	• It is not known to what extent Islamic banks are contributing to the green investment and other related sectors such as renewable energy and the environment. With this, one can increase our understanding whether green finance investment can improve Islamic banks' stability compared to other forms of transactions or not.
	Solvency and Risk	• Small (large) IBs are more (less) stable with lower credit risk than their conventional counterparts of	• Small size Islamic banks are stable compared to conventional banks of the same size, but we are not

the same size.
Islamic banking literature focuses on risk-taking and credit risk while neglecting other risk typologies such as operational risk despite its immense importance in the system.

- Possibility of Islamic banks' insolvency risk increases with Basel II standards, but reduces that of conventional banks
- informed whether the newly Islamic banks with modern innovations are more stable compared to those maintaining traditional practices of old ages.
 Empirical assessment of various risk typologies
- other than credit risk on Islamic banks is required.
 Further investigations to the Basel III relations to Islamic banks' insolvency risk will guide the policymakers and practitioners on its implication.
- There is a need for further research on NSFR compliance, stability enhancement, and its efficient functionality to Islamic banks (Ashraf et al., 2016b).

Table 8 (Continued)

Themes	Sub-themes	Lessons learned	Future studies
	Efficiency	• Islamic banks are less cost-efficient with a higher intermediation ratio, asset quality, and capitalization, even during a crisis.	• Further research is needed as to whether functional Sharia advisory board and governance can influence Islamic banks' efficiency, thus improving their stability.
Maqasid of Islamic banks	Maqasid index	• <i>Maqasid</i> Sharia evaluation in the context of Islamic banking is highly inadequate despite it being of paramount importance as one of the major pillars that support the institution. However, the few studies conducted in this area have concentrated on Asian countries with a short data range.	• The need for extending research in this area is highly desirable, so that one can visualize the behavior of Islamic banks in fulfilling their socio-economic commitments.
	Disclosure	 Despite the positive association between corporate social responsibility and Islamic banks performance, some Islamic banks' disclosure is not frequently available. Sharia board size influences better disclosure of social responsibility, resulting in improved financial performance. 	 Integrating corporate social responsibility indicators with <i>maqasid</i> index will help to have a holistic metric for assessing Islamic banks' social objective. Disclosure is improved by the size of the Sharia board, but it is not clear whether risk and risk-sharing disclosure of Islamic banks have any impact on their efficiency, stability, and competition.
	Financial inclusion	 Islamic finance can help fulfill sustainable development goals through financial inclusion. 	 However, empirical studies that link the latter and the former are not currently available. Moreover, future studies are recommended to explore this area and find the missing link that is causing the gap in reaching out to the poor in most Muslim countries. Social inclusiveness through PLS entrepreneurship modalities requires future empirical investigations into how they ease endemic poverty and enhance wealth distribution. Therefore, a future survey could focus on the impact of Islamic social finance (zakat, <i>waqf</i>, and <i>Sadaqah</i>) towards socio-economic development.
Islamic banking regulations	Regulations	 The available literature on the Islamic banking regulations is mostly conceptual, which makes it difficult to deduce inferences on cross-border regulatory compliance. The gap between Islamic and conventional banks hinges on not realizing the foundational differences between these two banking sectors. 	• In-depth analysis of the functional roles of the regulators and Sharia advisors, the function of efficient laws and directives and guideline, and effectiveness of the supervision within the Islamic banking industry is also needed. The researcher should explore this opportunity and add new value to the literature.
	Financial standards	 Financial standards of Islamic banking and finance are still undergoing modifications. IMF recommends Islamic banks regulators to provide LOLR that is Sharia-compliant, deposit insurance scheme, and resolution framework. 	 Studies related to Islamic financial standards are predominantly qualitative. Further empirical investigations will inform us other new insights in the area. Conceptual and empirical research is warranted in Islamic deposit insurance scheme and LOLR. Bankruptcy resolution and arbitration in Islamic banking requires further research.
	Consumer protection	Consumer protection helps Islamic banking industry.	• Empirical studies that address the consumer protection practice in Islamic and conventional banks will highlight their societal goals.
Data and Methodology	Methods and locations	 Islamic financial studies have extensively used different methodologies from different geographical locations of the world with a concentration in MENA and Asian countries. Conventional and Islamic banks differ in principle, and thus, the methodologies used to analyze the former may not be optimal for examining the latter in some cases. 	 There is a need for further exploration to uncover techniques and areas that have not been sufficiently represented. Thus, a unique standard method is required for Islamic financial products to avoid misplacement of priority (Azmat et al., 2014).

Notes:

1. Although, the journal of research in Islamic Economics began publication in 1983 (1403H). In 1989, the journal changed its name to Journal of King Abdulaziz University: Islamic Economics (JKAU: IE), and listed in Scopus in 2009. The first two volumes available online appeared in 1984 with a foundational knowledge of Islamic Economics and Finance that link with primary sources of Sharia. Most of the early scholars focused on Islamic economics and socioeconomic policies with few from finance and banking. The volumes have both English and Arabic version, which include sections for articles, notes, research in progress, discussion forum, reviews and abstracts, and highlight on seminars and conferences. http://iei.kau.edu.sa/Pages-E-JKAU-IEHome.aspx, accessed 17 November 2017.

- The fund has 124 branches with 9 million depositors, indicating its penetration of socio-economic life (http://www.tabunghaji. gov.my/maklumat, accessed 26 June 2017).
- 3. The list of countries with established banks in the 1970s were: Egypt (Naseer Social Bank and Faisal Islamic Bank), Saudi Ara-

bia (Islamic Development Bank, Jeddah), the UAE (Dubai Islamic Bank), Sudan (Faisal Bank of Sudan), Bahrain (Bahrain Islamic Bank), the Philippines (Philippines Amana Bank), and Jordan (Jordan Islamic Bank and Jordan Financial and Investment Bank).

- 4. https://www.imf.org/en/News/Articles/2017/02/21/PR1753-IMF-Board-to-Strengthen-the-Financial-Stability-in-Countrieswith-Islamic-Banking, accessed 26 June 2017
- 5. AAOIFI aims to provide accounting, auditing, ethical and governance standards to Islamic financial institutions. At the same time, the IFSB issues standards to supervisors and regulators of Islamic financial institutions to ensure the soundness and stability of the institutions. IIFM standards are issued to both capital and money markets by providing contract templates and other documentation. In summary, the standard-setters engage in providing training, organizing seminars, and conferences, alongside rigorously reviewing and developing new standards.
- 6. The report used information based on the http:// islamicfinancedata.org/IBISHomepage.aspx database, which was collected in 2012. The percentage presented in the current status section is based on the 2016 IFSB report (most recent), which was used also by the IMF report (Shabsigh et al., 2017).
- 7. The three major elements have nine dimensions with 10 elements and performance ratios. For more details, one can explore the studies of Mohammed et al. (2008), Antonio et al. (2012), and Mohammad and Shahwan (2013).

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