The performance of Islamic banks in the MENA region: Are specific risks a minor attribute?

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Updated: December 2017

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Abstract

Islamic banks face specific risks related to *Sharia*-compliant contracts. We provide an exhaustive literature review addressing the methodological issues of the measurement of performance and document the main stylised facts regarding the performance of Islamic banks (IBs) in the MENA region. We investigate 53 IBs in 11 MENA countries over 2007-2014, first using cross-sectional analysis as of year 2013. A panel data model with instrumental variables estimates the impact of risks upon the returns on assets and equity of Islamic banks. Four salient results emerge: *Sharia* compliance exerts an ambiguous effect upon performance; Islamic specificity is a minor attribute according to the insignificant share of profit and loss sharing (PLS) contracts in total assets; there is no relationship between *Sharia* compliance and specific risk;. loan loss provisions do not restrict to specific risks (PLS), hedging all risks

Keywords: cross-section analysis; Islamic banks; MENA region; panel data econometrics; performance; risks.

JEL: C67, C41, G21

Introduction

Islamic banking (hereafter IB) is governed by a set of rules prohibiting uncertainty (*maysir*), speculation (*gharar*) and charging an interest rate upon loans (*riba*) that are sources of risk, with the obligation to back up transactions to a tangible asset and share profits as well as losses. The activity must be lawful and validated by a *Sharia* Board. *Sharia*-compliance prevents IBs from granting subprime loans, leverage, acquiring risky structured products and investing in financial vehicles that lack traceability (Asutay, 2010).

The remuneration of the bank is justified by its participation, as co-owner, in the profits or losses of the project financed in the case of a venture capital (*Mudarabah*) or a joint venture (*Mucharakah*) and its function of marketing or leasing property previously acquired by it, in the case of a purchase-resale (*Murabahah*) or a lease (*Ijara*). These contracts, including insurance and other products stemming from financial innovation, are OTC commitments.

The global recession disrupted both the financial and the real economy, validating the hypothesis of instability of the conventional banking system (Minsky, 1986); it drew attention to IBs, presented as a resilient alternative to conventional banking (hereafter CB) (Hassan and Kayed, 2009). Evidence is mixed: some IBs were better-off in 2008-2009 than CBs regarding profitability, with the exception of Bahrain, Qatar and especially the United Arab Emirates that count the largest number of banks in the Gulf (Hasan and Dridi, 2010). Resilience varies among MENA countries according to the size of the banks and it is open to question whether large IBs or small ones have resisted better (Said, 2012; Abedifar et al., 2013; Ouerghi, 2014). Boukhris and Nabi (2013) point out there is no significant difference as regards the effect of the financial crisis on the soundness of IBs and CBs.

According to the empirical literature review, most studies follow a comparative approach with CBs and focus upon the performance of banks and the market, but very little on asset

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prices and interactions on the market (Narayan and Phan, 2017). Conversely, few studies have examined the links between IB performance and the various risks. Risks specific to IBs, such as non-*Sharia* compliance, Islamic contracts and displaced commercial risk, are scarcely considered, whereas panel data analysis is little used. Our article fills the gap with an analysis of the impact of risks specific to IBs upon their performance in the MENA region.

Section 1 is devoted to the review of empirical literature, addressing the controversial issue of the performance of IBs and the risks they face. Section 2 displays the data source, sampling and descriptive statistics. Section 3 exhibits the results of a cross-sectional analysis. Section 4 presents the estimates of the panel data analysis. Conclusion highlights four salient findings: the ambiguity of *Sharia*-compliance and the low specificity of IBs, regardless of the banking system in the MENA region, the absence of relationship between *Sharia*-compliance and the Islamic contracts, as well as the coverage of overall risks by loss provisions that are not restricted to specific risks.

1. Literature review

1.1. Comparative and intrinsic performance of Islamic banks

Our literature review lists 37 papers on the performance of IBs that can be classified into four categories, the first three of which relate to comparative analysis with the CBs; The latter concerns the intrinsic performance of IBs.

In the first category, nine papers works cover (at most) the period 1993-2013 and 70 IBs from 13 MENA countries. Various methods are used: Data Envelopment Analysis (Al-Muharrami, 2008); Stochastic Frontier Analysis (Alam, 2012; Amal and Mohamed, 2015; Regaieg and Abidi, 2015), or Discriminant Function Analysis (Olson and Zoubi, 2011; Ben Khediri et al., 2015); financial ratios analysis (Parashar and Venkatesh, 2010; Siraj and Pillai, 2012) and panel data econometrics (Rajhi and Hassari, 2013). IBs are more profitable, more liquid and better capitalized; more stable, more competitive and more risk-prone, they were less affected during the 2008 recession.

The second category comprises eleven surveys covering (at most) the period 1995-2014 and 40 IBs from 14 MENA countries. SFA methods are used (Abdul-Majid et al, 2010; Srairi, 2010, Ferhi and Chkoundali, 2015), Meta Frontier Analysis (Johnes et al, 2013); financial ratios analysis (Elsiefy, 2013; Fayed, 2013; Miniaoui and Gohou, 2013; Ibrahim, 2015) and panel data econometrics (Beck et al., 2013; Kamarudin et al., 2014; Al-Deehani et al., 2015). IBs are less profitable; they bear higher transaction costs (operation risk) as well as credit and liquidity risks; they are were more affected during and after the 2008 recession. Influence of the age (experience) of banks upon their performance is controversial.

In the third category, seven works cover (at most) the period 1990-2014 and 23 IBs from 12 MENA countries. They use DEA (Bader et al., 2008; Hassan et al., 2009; Said, 2013) and SFA (Sillah et al, 2015), financial ratios analysis (Meero, 2015) and panel data econometrics (Hidayat and Abduh, 2012; Zeitun, 2012). Performance is negatively correlated to operational and credit risk, not liquidity risk; Size has a positive influence upon bank performance due to economies of scale. In 2010, there was no significant difference in performance between IBs and CBs: the impact of the 2008 recession upon financial markets and the real economy did also affect IBs.

Comparative analysis suggests that the best (worst) performance of IBs *versus* CBs does not depend on the methods that are commonly used in the three aforementioned categories. Indeed, nonparametric methods (DEA) do not measure random error, unlike parametric methods (SFA) that also distinguish the specific effects of banks but impose a functional form, which can induce a bad specification. According to Berger and Humphrey (1997), neither method is

superior to the other; these often produce the same results. The same applies to the financial ratios analysis, which is congruent with economic analysis. Performance depends primarily on the size and composition of the sample, as well as on the period of time under review. Enlarging the size helps considering a wider variety of countries whose wealth levels differ, provided that the country effect is correctly identified, which most surveys omit. In addition, outliers that bias the results are not removed, with the exception of Beck et al. (2013). Conversely, a small size reinforces the homogeneity of countries, particularly in surveys upon the Gulf Countries Council (GCC) or monographs devoted to a single country, which reveal the heterogeneity of banks.

A fourth category comprises nine studies focusing only upon 14 Islamic banks, mostly located in the MENA region. Zarrouk (2012) compares the profitability, liquidity, risk and solvency, and efficiency of 20 IBs over 2005-2009; the profitability and liquidity declined after the crisis in Bahrain, Kuwait and UAE. Rosman et al. (2014) apply DEA to 79 IBs from MENA and Asian countries over 2007-2010, the majority of which proved scale inefficient. Mghaieth and Khanchel (2015) using SFA upon 62 IBs in sixteen countries of the MENA and South-East Asia regions over 2004-2010, hold that IBs are more efficient for profits than for costs. Unlike Sulfian and Noor (2009), according to Yudistira (2004), Kablan and Yousfi (2013) and Wahidudin et al (2014) the MENA IBs experience lower performance than their Asian counterparts. IBs operating in high-income countries are more efficient than in other countries (Ahmad et al, 2010). It is therefore relevant to capture the bias related to this lower performance in the MENA region gathering countries with high-income, middle-income and low-income per capita.

Among the listed papers, we focus upon the eleven surveys using panel data analysis, the results of which are more robust (Appendix, Table A1). Seven surveys compare IBs and CBs. The samples mainly cover the MENA countries (except Beck et al., 2013), four of which are exclusively devoted to oil monarchies (Hidayat and Abduh, 2012; Zeitun, 2012; Kamarudin et al., 2014; Al-Deehani et al., 2015). Only three studies focus exclusively on IBs, among which Wahidudin et al. (2014) and Trad et al. (2017) use diverse and large samples. Stylised facts according to the panel data surveys show that IBs are profitable but not necessarily more efficient than CBs. They are well capitalized, liquid and risk prone, but experience higher transaction costs and do not reach the optimum size necessary for economies of scale.

1.2. Conventional and specific risks

According to conventional finance, the norm governing financial decisions is the optimization of the risk / return ratio and IBs seem to illustrate the positive correlation between risk and return (Alam, 2012). However, it remains open to question whether the risk-performance trade-off is comparable for IBs to that of CBs.

IBs face the same liquidity risk, credit risk, operational risk and solvency risk as CBs. However, risk-taking and commercial margin are the only sources of profitability of IBs, whose predominant instrument is *Murabahah*, which substitutes the rate of profit to the interest rate. Conversely, CBs do not bear the losses and only transfer risks.

The most important risks for IBs are threefold: credit risk, liquidity risk and operational risk (Hussain and Al-Ajmi, 2012).

Credit risk as well as operational risk are negatively related to performance, while liquidity risk has a non-significant relationship with the efficiency of the MENA IBs (Said, 2013).

Credit risk results from an unforeseen alteration in the credit quality of the issuer or partner and is a source of instability in the banking system (McNeil et al, 2005). Poor cost management goes hand in hand with a higher credit risk (Berger et al, 1997). Ferhi and Chkoundali (2015)

suggest that the higher is concentration in IBs, the higher credit risk will be. The positive impact of size upon the loan quality is lower for IBs as well as for credit risk.

Liquidity risk is defined as a potential loss and seems to reflect best the genuine characteristics of IBs (Desquilbet and Kalai, 2013).It arises from the inability of IBs to hedge their liabilities or to increase their assets (Idries, 2012), the absence of an Islamic interbank market to refinance and the lack of *Sharia*-compliant financial instruments. Securitization, which has become the main means of attracting new investors, is framed by principles identifying the nature and ownership of the real asset that prohibit the use of collateral such as debt, liquidity or an illegal activity. Nevertheless, multiple stakeholders imply multiple credit risk, which comes from the issuer of the security, the bank and the entrepreneur when the underlying asset is based on a Profit and Loss Sharing (PLS) investment, or from the tenant of a lease.

Operation risk creates losses due to inadequate or inconclusive internal practices, personnel and technology, or external events: it influences decision-making (Ray and Cashman, 1999). This risk is significant for IBs and becomes more complicated compared to CBs because of the particular aspects of Islamic contracts and the general legal environment (Marliana et al., 2011). IBs typically take more risk than CBs and require more capital to manage their level of risk (Srairi, 2010).

Credit risk as well as operational risk are negatively related to performance, while liquidity risk has a non-significant relationship with the efficiency of the MENA IBs (Said, 2013). IBs perform better in credit risk management and solvency maintenance (Muhammad et al., 2012).

In addition, IBs face three different risks: risk of non-compliance, risk specific to Islamic contracts and the default risk. Risk of non-compliance stems from the divergence of interpretation between the members of the *Sharia Board*, which is difficult to circumscribe in the absence of universally recognized religious norms. The specific risk concerns PLS contracts (*Mudharabah* and *Mucharakah*), which require costly monitoring and negotiation of profit and loss sharing (Khan and Ahmed, 2001) and *Ijara* contracts whereupon the bank has to manage and maintain the property leased to avoid value deterioration.

The displaced commercial risk is due to inadequate asset returns that transform into market risk, driving to (i) an increase in yields of investment accounts on a liability basis in order to offer competitive market remuneration and (ii) liquidity risk resulting from the potential withdrawal of unsatisfied depositors. This business risk is not a risk per se, but a mechanism that links the risk to a real asset (market risk) and the liquidity risk associated with the withdrawal of deposits. It is therefore addressed indirectly through the risk specific to Islamic contracts in both the cross-sectional and panel data analyses.

The entanglement of risks is due to the simultaneous existence of the various conventional and specific risks encapsulated within each Islamic contract. The regulatory provisions of the Basel III agreements (liquidity standards, leverage ratio and capital adequacy ratio) did not take into account the case of IBs, whose asset transactions must be treated according to different risk weighting. The Islamic Financial Services Council lists all the contracts proposed by IBs, and designed new recommendations to complement the Basel standards with those of the Islamic Finance Regulation (IFSB, 2015).

2. Data source, variables and methodology

In order to design our sample we used the Bankscope database, removing the banks for which only one single observation (year) was available and those with most of the data missing. Our sample over the period 2007-2014 consists in 53 IBs from 11 MENA countries, including five oil producers (Saudi Arabia, UAE, Iran, Kuwait, and Qatar), among which Saudi Arabia and

Iran apply *Sharia* as a source of law as well as Yemen, a non-oil producer. Other non-oil-producing countries not regulated by *Sharia* are Egypt, Jordan, Tunisia, Bahrain and Syria.

Specific risk is determined with three indicators: (i) Loan Loss Provisions (*LLP*) in the Profit and Loss-sharing (PLS) account; (ii) the share of specific contracts in total assets (*Specific contracts*), including participation products (*Mudharabah* and *Mucharakah*), to which the principle of profit and loss-sharing applies, as well as *Ijara;* (iii) the number of members on the *Sharia* Board, assuming that a large number of members should secure *Sharia* compliance.

Other risks faced by IBs are related to credit, liquidity and solvency. Credit risk (*CR*) is measured by the provision for Non-Performing Loans. Liquidity risk is expressed by two indicators long-term (*LTLR*) and short-term (*STLR*), respectively. *Z-score* gauges measures the solvency risk (or banking stability) and is expressed in logarithm (Ln-*zscore*).

In addition, bank characteristics (*Age*, *Size*, *Concentration* and *Ownership*) and the macroeconomic environment (*Inflation*, *GDP growth* and *Oil-Monarchy*) are the explanatory variables for bank performance (Table 1).

Table 1. Variables

Variables	Definition	Formula	Source
Performance	Return on average assets (*ROAA*)	Net operation income before subsidy/ Total average assets	Bankscope
	Return on average equity (*ROAE*)	Net operation income before subsidy/ Total average equity	Bankscope
	Loss Loan Provisions (*LLP*)	Loss Loan Provisions upon *Profit and Loss Sharing* (PLS) accounts	Bankscope
Specific risk	*Sharia* Board (*Board*)	Number of members in the *Sharia* Board	Annual reports
	Share of specific contracts in total assets (S*pecific contracts*)	$\frac{\sum Specificcontracts(PLS\ and\ Ijara)}{Total\ Assets}$	Annual reports
Credit risk (*CR*)		Reserve for Non-Performing Loans/ Outstanding gross loans	Bankscope
Liquidity risk	Short-term liquidity ratio (*STLR*)	Liquid Assets/ Client Deposits and short-term financing /	Bankscope
	Long-term liquidity ratio (*LTLR*)	Net loans/Total Assets	Bankscope
Solvency risk	***z-score***	$\ln(Zscore) = \ln\frac{E(ROA) + CAR}{\sigma_{ROA}}$ CAR (capital ratio): Equity /Total Assets. ROA standard deviation is calculated for each bank over the period 2007-2014	Bankscope
Bank characteristics	*Age*	Difference between the year of observation and the year of establishment	Bank websites
	Size	Ln(Total Assets)	Bankscope
	Concentration	Bank deposits/Total banks deposits	Bankscope
	Ownership	*Dummy* (Domestic vs. Foreign)	
Macroeconomic variables	*Inflation*	Inflation rate	WDI
	GDP growth	GDP growth rate	WDI
	Oil-monarchy	*Dummy* (Oil-producer *vs*. non-oil producer)	OPEC

Source: Authors

We assess the impact of specific risks upon the economic (*ROAA*) and financial (*ROEA*) performance of IBs. As a first step, we examine the relationship between performance and specific risks, thanks to a cross-sectional analysis. In the second step, we estimate the impact of all the aforementioned risks upon the performance of IBs throughout the overall period, thanks to a panel data model.

3. Cross-sectional analysis

We apply a Principal Component Analysis (CPA) and a cluster analysis to a sample of 46 IBs in 11 MENA countries as of year 2013 that gathers the largest sub-sample: Bahrain (10), Egypt (2), Jordan (2), Kuwait (7), Qatar (3), Saudi Arabia (2), Tunisia (1), UAE (8), Syria (3) Yemen (3), and Iran (5). The variables used are the two performance measures (*ROAA* and *ROAE*) and the three specific risk indicators (*LLP*, *Specific Contracts* and *Sharia Board*). We identify the relationship between banking performance and specific risks, as well as a "country" effect.

LLP and *Specific contracts* indicators are broken down into two classes. IBs experience high *(vs*. low) specific risk when the share of provisions and risky assets is below (*vs.* above) median. If the *Sharia* Board is below (*vs.* above) the median of four members, the risk of *Sharia* non-compliance is high (*vs.* low). In Iran, banks do not have a Board but are all ruled by *Sharia* and therefore are compliant. Hence, the sample counts three out of five IBs that comply with *Sharia* (Table 2).

Table 2. Active variables: specific risks and financial performance (2013)

Code	Variables	IBs	Code	Variables	IBs
Specific risks variables					
	Specific contracts / total assets (2 classes): *Share of risky assets*			*LLP/ Total assets (2 classes):* *Risky assetshedging*	
SP1	<*median (*low *specific risk)*	*20*	*LLP1* < median (deficient risk management*)*		20
SP2	≥ *median (*high *specific risk)*	*21*	*LLP2* ≥ median (cautious risk management)		21
	Shari'ah Board(2 classes)				
Board1	0-1 members (Iran)and 4-10 members(low *risk of non-compliance*)				25
Board2	1-4 members (high *risk of non-compliance*)				16
Financial performance variable					
	ROEA (3 classes)				
ROAE1	<0% (not profitablee)				3
ROAE2	≥0% and< median (cost-effective)				17
ROAE3	≥ median (very profitable)				21

Source: Authors

ROEA is strongly correlated with returns on assets (Appendix, Table A2), and used here as the most relevant indicator for IBs, because it expresses the shareholders' point of view.

Factor analysis is limited here to the most interpretable axes 1-2 that account for 55 per cent of the variance[1] (Appendix: Figure 1). Axis 1 expresses the profitability of banks. It displays a positive relationship between the specific risk and the risk of non-compliance. It contrasts *Board1* and *SP1* with *Board2* and *SP2* by distinguishing IBs whose specific risk and non-compliance are respectively low and high. Axis 2 identifies the relationship between specific risk and profitability; it can be interpreted as the axis of the asset structure. It contrasts *ROEA3* and *LLP1* with *ROEA2* and *LLP2*. It thus distinguishes the highly profitable IBs with low loss provisions from those that are less profitable and store high provisions.

Given the absence of CBs in Iran, the banking system is ruled by *Sharia,* without a significant number of Board members, and *Specific contracts* are of minor importance. IBs use conventional products more than participation contracts; hence, they seem to be averse to specific risk.

There are almost as many IBs facing low non-compliance risk and / or specific risks as high non-compliance risk alongside high or low performance. Cluster analysis (Appendix, Figure 1) displays very heterogeneous risk configurations.

Four clusters illustrate a relationship between risks and performance that is either negative (clusters 1 and 3) or positive (clusters 2 and 4).

Cluster 1 gathers six high performing IBs - Saudi Arabia (2), Iran (2) and Egypt (2) - whose specific risks (*SP1* and *LLP1*) and non-compliance (*Board1*) are low. These IBs combine high profitability with a small share in specific contracts while complying with *Sharia*.
Cluster 2 includes six less-performing IBs - Iran (2), Bahrain (1), Kuwait (1), Jordan (1) and Syria (1) - whose risks are small although they store significant provisions.

Cluster 3 comprises seven low-performing IBs - Bahrain (3), UAE (3) and Syria (1) - with a high level of risk (*SP2* and *LLP2)* and non-compliance (*Board2*). IBs combine poor performance with a significant share in specific contracts and significant provisions without complying with *Sharia*.

Cluster 4 includes four performing IBs - Qatar (2), UAE (1) and Jordan (1) – with high specific risks and non-compliance. Specific investments are not covered by provisions and profitability is high.

Two other clusters encapsulate an interacting or complementarity relationship between specific risk and non-compliance risk. In cluster 5, ten IBs - UAE (4), Kuwait (2), Bahrain (1), Iran (1), Tunisia (1) and Egypt (1) - of which eight are highly profitable, combine high specific risk and low non-compliance risk. In cluster 6, five IBs - Yemen (3), Syria (1) and Kuwait (1) combine low specific risk with high non-compliance risk.

4. Panel data analysis

4.1. Methodology

We designed a panel data model wherein the two performance indicators (*ROAA* and *ROA*E) are the explained variables and all other variables are the explanatory variables for bank performance. The overall sample consists in 53 banks over 2007-2014 (See Table 3).

IBs in the sample are distinct from one another by fixed intrinsic characteristics (*Within* fixed effects model) or random (*FGLS* random effects model). The Fisher test (probability <5%) and the Breusch-Pagan test (Probability <5%) verify the existence of the specific effects. The Hausman specification test identifies whether these effects are fixed or random and the appropriate estimation method. If the probability of the test is over 5%, only the FGLS estimators are asymptotically efficient. The fixed effects method ignores the effects of invariant variables over time. Neither of the two estimation methods allows the presence of endogenous variables, namely *Ownership* and *Size*; hence, the method of instrumental variables (*IV*) should be used (Baltagi, 2008). The Hausman test allows to choose the most efficient estimation method: *IV* in the case of a probability below 5% or *FGLS* otherwise. In addition, the *IV* method is favoured when the specific effects do not exist (Breusch-Pagan probability> 5%) and the endogeneity of variables in models has been checked (Sargan probability> 5%).

We adopt a step by step approach. The first step includes *Specific contracts* (model 1) and then adds provisions (*LLP*) (model 2) as specific risks. The second step includes the *Sharia* Board variable (model 3) to study the impact of non-compliance risk. Eventually, all three risks are simultaneously considered (model 4).

The model is first estimated upon the entire sample and then upon a sub-sample omitting the Iranian banks, to avoid the selection bias previously identified in the cross-sectional analysis and check the robustness of our results.

Table 3. Estimates of performance models: full sample

Dependent variables	**ROAA**				**ROEA**			
Models	(1) *FGLS*	(2) *IV*	(3) *IV*	(4) *IV*	(1) *IV*	(2) *FGLS*	(3) *IV*	(4) *FGLS*
Explanatory variables								
Specific contracts	-0.0002 (-0.0345)	0.0018 (0.1263)		0.0026 (0.1864)	0.0096 (0.1597)	-0.0092 (-0.2850)		-0.0052 (-0.1554)
LLP		-0.8365** (-2.3281)		-0.8354** (-2.3306)		-5.9438*** (-3.1498)		-5.7632*** (-3.1649)
Board			-1.6794* (-1.7436)	-1.6818* (-1.7255)			-8.8547* (-1.8656)	-2.2214** (-2.1280)
CR	0.0177 (0.2839)	0.0445 (0.9892)	0.0253 (0.5705)	0.0438 (0.9813)	-0.1387 (-0.7404)	0.0096 (0.0392)	-0.1261 (-0.6779)	0.0371 (0.1569)
LTLR	0.0282 (1.2729)	-0.0129 (-0.5151)	-0.0280 (-1.1686)	-0.0146 (-0.5889)	-0.0676 (-0.6604)	0.2141** (2.5281)	-0.0821 (-0.8139)	0.2039*** (2.6953)
STLR	-0.0055 (-1.2765)	-0.0102 (-1.5997)	-0.0092 (-1.4500)	-0.0079 (-1.2399)	-0.0376 (-1.4106)	-0.0098 (-0.6157)	-0.0284 (-1.0628)	-0.0077 (-0.4481)
lnZscore	0.5333** (1.9814)	2.9151*** (3.7386)	2.5403*** (3.5684)	2.6172*** (3.6341)	13.0327*** (3.8902)	2.6640* (1.7863)	12.8708*** (3.9886)	2.5419* (1.8581)
Age	0.0014 (0.0858)	0.0015 (0.0159)	0.0051 (0.0679)	-0.0124 (-0.1619)	0.3097 (0.7642)	0.0501 (0.4879)	0.1757 (0.4838)	0.0466 (0.4105)
Ownership	-0.1045 (-0.1429)	-0.2587 (-0.4383)	-1.0215 (-1.1154)	-0.9672 (-1.0818)	20.8915 (0.4729)	2.6819 (1.0325)	-6.3371 (-0.1840)	0.2930 (0.0926)
Size	-0.0227 (-0.2202)	0.9074 (1.5049)	0.9957* (1.7832)	0.9520* (1.6878)	5.2387* (1.9587)	-0.6633 (-0.9717)	6.0576** (2.3049)	0.2437 (0.3115)
Concentration	1.3226* (1.8130)	1.2581 (1.3198)	1.2103 (1.2731)	1.2581 (1.3198)	8.4044** (1.9972)	7.5074** (2.0442)	7.4691* (1.8302)	6.6204* (1.8191)
GDPgrowth	0.1226*** (3.2181)	0.1172*** (3.2764)	0.1089*** (3.0316)	0.1172*** (3.2764)	0.4230*** (2.8144)	0.3647*** (2.6734)	0.4336*** (2.9106)	0.3883*** (2.7766)
Inflation	0.1304*** (2.5783)	0.1107** (3.1441)	0.1179*** (3.1584)	0.1107** (3.4536)	0.4881*** (2.5763)	0.6715*** (3.3181)	0.4918*** (2.6187)	0.6317*** (3.4396)
Oil-monarchy	0.9745** (2.2837)	1.4563 (0.2747)	2.5743 (0.6966)	2.4994 (0.6574)	1.5302 (0.0632)	1.4496 (0.5530)	7.2314 (0.3730)	1.0948 (0.3758)
Observations	220	220	220	220	220	220	220	220
Number of banks	47	47	47	47	47	47	47	47
R-squared	0.2054	0.252	0.267	0.298	0.3017	0.3656	0.3272	0.2935
Fisher	0.0004	0.0001	0.0002	0.0001	0.0001	0.0000	0.0001	0.0000
Wald	34.10	45.17	49.01	59.96	46.41	68.55	55.15	76.56
Breush Pagan	0.0196	0.0556	0.0977	0.1484	0.0000	0.0000	0.0000	0.0000
Sargan	0.1918	0.2619	0.0820	0.1595	0.1342	0.1851	0.1340	0.2481
Hausman	0.1052	0.0060	0.0390	0.9185	0.0380	0.3802	0.0307	0.0213

*** p< 0.01, ** p <0.5, * p<0.1. T-Student into parentheses.

Source: Authors, from Bankscope and bank reports

4.2. Results and robustness

Estimates of the step-by-step model (Table 3) show a significant and negative effect of the specific risk *(LLP*) and non-compliance (*Board*) upon the return on assets (*ROAA* and *ROEA*).

According to model 1, a large share of specific contracts is financially (ROEA) although not economically (ROAA) efficient, due to high concentration of risks. In model 2, the inclusion of the *LLP* variable changes the signs of the *Specific contracts* variable that remains insignificant. According to model 3 that supports model 2, the larger the *Sharia* Board, the lower the risk of non-compliance and the lower the performance of the bank.

Model 4 shows an inverse relationship between (high) specific risks on the one hand and (low) risk of non-compliance as well as (low) performance measured by *ROEA* on the other hand. This confirms the result identified by cross-sectional analysis and the complementary relationship between risks.

Thus, numerous specific contracts require a large expert *Sharia* Board to check compliance, while avoiding congestion; hence, there is an opportunity cost that affects profitability.

The various models estimated confirm the impact of specific and other risks, size and country effect variables: *LTLR*, *LnZscore*, *Concentration*, *inflation* and *GDPGrowth*. We discuss model 4, with regard first to the determinants of the overall sample, then to those of the sub-sample without Iran.

The results of model 4 are provided by *IV* as for *ROAA* and by *FGLS* as for *ROEA* (Table 3). They show that the loss reserves (*LLP*) negatively affect bank performance. *LLP* is a risk indicator and not a means of smoothing bank profit as demonstrated by Zoubi and Al-Khazali (2007) and Hassan and Mollah (2014). However, IBs also use loan loss provisions for discretionary managerial actions, when bank capitalization declines. (Soedarmono et al., 2017).

Any increase in the short-term (*Murabahah*) and long-term (*Mucharakah*) portfolio of contracts positively affects profitability, provided the level of risk remains acceptable (Olson and Zoubi, 2011). Long-term liquidity ratio (*LTLR*) has a positive and significant impact on *ROEA*. To mitigate this risk investment in long-term contracts should decline while maintaining liquidity to cover short-term contracts. However, an excess in liquid assets is detrimental to the profitability and development of IBs (Toumi et al, 2016) due to the opportunity cost of inactive money. Hassan and Bashir (2003) conclude that *STLR* has a negative impact, while we observe a non-significant impact upon performance.

The risk of bank failure or solvency risk (*LnZscore*) has a positive and significant impact upon performance (*ROAA* and *ROEA*). The higher the LnZscore, the lower the default risk, the more stable and profitable are IBs. According to Srairi (2010), there is no difference between IBs and CBs as regards default risk; On the other hand, according to Onakoya and Onakoya (2013) and Zehri and Al-Herch (2013), IBs were more stable and profitable during the 2007-2008 crisis, due to *Sharia* compliance requirements.

Ownership and *Size* do not exert any significant effect upon bank performance; it is positive as regards *Size*. The *Concentration* ratio of deposits in each IB affects positively and significantly ($p < 0.1$) *ROEA*. Profitability is the result of significant market power in the MENA region, which is oligopolistic and sometimes monopolistic (Kamarudin et al., 2014).

Macroeconomic variables (*GDPgrowt*h and *Inflation*) have a positive and significant effect on performance, whereas *Oil monarchy* is insignificant. Rising demand for deposits and loans positively affects the revenues of IBs and, consequently their profitability. *Inflation* has a positive impact upon the performance of IB, if their profits are mainly derived from direct investments, participations and / or other commercial activities (*Murabahah*). This is also the conclusion of Olson and Zoubi (2011) and Kamarudin et al. (2014), while Wahidudin et al. (2014) find a negative impact on the profitability of the MENA region.

The estimate of the sub-sample of 10 MENA countries, excluding Iran, confirms most previous results (Table 4). One indicator of specific risk - provisions for losses in PLS account (*LLP*) and as well as solvency risk (*LnZscore*), *Concentration* and some macroeconomic variables (*GDPgrowth* and *Inflation*) retain the same signs and remain the determinants of performance. However, *Specific contracts* becomes positive with *ROEA* and *Board* variable remains negative although both prove insignificant. On the one hand, the complementary relationship between *Sharia* compliance and the share of specific contracts cannot be confirmed. On the other hand, the specific contracts that are covered with few provisions are profitable.

There is indeed a selection bias in the overall sample, which the econometric estimate has identified in the IB sub-sample of 10 MENA countries that combine a dual Islamic and conventional banking system. Although Iranian banks are the most mature and follow the

principles of Islamic finance, they are exposed to the risk of non-*Sharia* compliance, which is a hindrance to the development of their products and the diversification of their assets.

The long-term liquidity risk (*LTLR*) turns insignificant, while *Size* becomes significant: IBs with large size have significant assets that are highly profitable and can benefit both from economies of scale and product diversification (Olson and Zoubi, 2011).

Age is negative although insignificant.

Table 4 Estimates of performance models: sub sample (excluding Iran)

Dependent variables	**ROAA**				**ROEA**			
Models	(1) *IV*	(2) *IV*	(3) *IV*	(4) *IV*	(1) *IV*	(2) *IV*	(3) *IV*	(4) *IV*
Explanatory Variables								
Specific contracts	0.0068	0.0087		0.0077	0.0496	0.0632		0.0618
	(0.4291)	(0.5517)		(0.4827)	(0.7679)	(1.0090)		(0.9873)
LLP		-0.9418**		-0.9371**		-6.2279***		-6.2193***
		(-2.1348)		(-2.1347)		(-3.5868)		(-3.5966)
Board			-1.1691	-1.1098			-2.5991	-2.2495
			(-0.7112)	(-0.6782)			(-0.3801)	(-0.3334)
CR	0.0377	0.0542	0.0454	0.0644	-0.0320	0.0842	-0.0324	0.0992
	(0.7765)	(1.1135)	(0.9272)	(1.3038)	(-0.1619)	(0.4343)	(-0.1635)	(0.5077)
LTLR	-0.0261	-0.0120	-0.0297	-0.0168	-0.0777	0.0178	-0.0705	0.0130
	(-1.0097)	(-0.4517)	(-1.1514)	(-0.6266)	(-0.7361)	(0.1687)	(-0.6749)	(0.1228)
STLR	-0.0110	-0.0095	-0.0109	-0.0097	-0.0398	-0.0305	-0.0391	-0.0309
	(-1.6248)	(-1.4161)	(-1.5844)	(-1.4070)	(-1.4577)	(-1.1493)	(-1.3962)	(-1.1358)
LnZscore	2.3495***	2.4092***	3.2270***	3.2814***	14.4257***	14.9955***	16.2873***	16.8236***
	(3.1005)	(3.1928)	(3.7274)	(3.7762)	(4.2303)	(4.5066)	(4.5870)	(4.8028)
Age	-0.0529	-0.0672	-0.0557	-0.0811	-0.0808	-0.2247	-0.0309	-0.2138
	(-0.5026)	(-0.6391)	(-0.4182)	(-0.6102)	(-0.1649)	(-0.4677)	(-0.0566)	(-0.3978)
Ownership	0.8192	1.0018	-2.0061	-1.9597	7.5143	8.2458	-3.4367	-3.9612
	(0.1387)	(0.1701)	(-0.2461)	(-0.2473)	(0.2463)	(0.2745)	(-0.1003)	(-0.1191)
Size	1.3476*	1.2549	1.8620**	1.7872*	9.2953**	8.8772**	10.1460***	9.8479***
	(1.6713)	(1.5635)	(1.9664)	(1.9071)	(2.5415)	(2.4878)	(2.6111)	(2.6023)
Concentration	1.2163	1.3192	1.3997	1.4341	8.2835*	8.7569**	8.9538*	9.1912**
	(1.1098)	(1.2136)	(1.2378)	(1.2742)	(1.8212)	(1.9848)	(1.9507)	(2.0577)
GDPgrowth	0.1587***	0.1446***	0.1577***	0.1470***	0.6805***	0.5891***	0.6583***	0.5953***
	(3.5159)	(3.2047)	(3.6102)	(3.2843)	(3.7512)	(3.3228)	(3.7316)	(3.3765)
Inflation	0.0961*	0.1001*	0.1054**	0.1047*	0.3997*	0.4216**	0.4440**	0.4336**
	(1.7522)	(1.8428)	(1.9670)	(1.9365)	(1.8105)	(1.9736)	(2.0515)	(2.0350)
Oil-monarchy	-0.8802	-0.9535	0.3564	0.0403	-12.4545	-13.2885	-7.8054	-10.0663
	(-0.2318)	(-0.2511)	(0.0620)	(0.0070)	(-0.6508)	(-0.7040)	(-0.3244)	(-0.4198)
Observations	193	193	193	193	193	193	193	193
Number of banks	40	40	40	40	40	40	40	40
R-squared	0.2356	0.2711	0.3080	0.3323	0.3544	0.4140	0.3780	0.4283
Fisher	0.0004	0.0002	0.0002	0.0002	0.0000	0.0000	0.0002	0.0002
Wald	37.30	48.56	70.48	88.57	61.13	88.16	76.34	102.71
Breush Pagan	0.1300	0.2338	0.4581	1.0000	0.1165	0.2138	0.2436	0.3032
Sargan	0.1384	0.1700	0.2142	0.3411	0.0512	0.0647	0.0680	0.1362
Hausman	0.0025	0.6684	0.0099	0.0021	0.0021	0.0055	0.0002	0.0003

*** p< 0.01, ** p<0.5, * p<0.1. T-Student into parentheses.

Source: Authors, from Bankscope and bank reports

Conclusion

We explore an aspect of risk that has been little addressed in the literature upon IBs, namely the specific risk relating to provisions for losses in equity contracts, the share of these contracts in total assets and *Sharia* compliance as measured by staff on the *Sharia* Board. We apply first a cross-sectional analysis and then panel data models using instrumental variables upon a sample of 48 IBs in the MENA region over the period 2007-2014.

Specific risks exert a significant impact upon performance. This impact is negative with respect to loss provisions upon PLS contracts and positive as for the share of these contracts in total assets. It corroborates the risk-return combination of classical financial theory rather than a genuine Islamic business model. The same applies to liquidity and solvency ratios, which have a positive although insignificant impact on the performance of IBs, whereas age and macroeconomic environment play a significant role.

Four main outcomes are worth mentioning. First, *Sharia* compliance is ambiguous and is compatible with high or lower performance of IBs operating in a dual Islamic and conventional banking system. Conversely, IBs operating in a fully Islamic banking system (Iran) are risk-averse and nevertheless perform well. Second, whether the banking system is dual or not, the non-significant share of specific contracts in total assets suggests that the so-called specificity of MENA IBs is a minor attribute. Third, there is no relationship between specific risk and the risk of non-compliance; Suggesting the absence of specific risk management. Fourth, loss provisions for PLS contracts are used as a means of hedging all risks, not just specific risks.

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Endnote

1. Detailed cross-sectional analysis is available upon request.

Appendix

Table A1. A review of panel data surveys upon IBs in the MENA region

Authors	Sample and coverage	Period	Method	Outcomes
Performance of Islamic banks (IBs) compared to conventional banks (CBs)				
Olson and Zoubi (2011)	80 banks; 10 MENA countries: 14 IBs; 66 CBs	2000-2008	DFA and panel data	IBs are less efficient (cost), more risk-prone and profitable than BC
Zeitun(2012)	51 banks; GCC: 13 IBs; 38 CBs	2002-2009	Panel data	Property and the age of banks do not influence performance: IBs do not differ from CBs. Profitability correlates positively with GDP and negatively with inflation.
Hidayat and Abduh (2012)	37 banks; Bahrain: 23 IBs ; 14 CBs	2005-2010	Panel data	Lag in the impact of recession.
Abedifar et al. (2013)	553 banks; 118 IBs (86 MENA); 354 CBs	1999-2009	Panel data, random effects	Small leveraged IBs have lower credit risk and are more stable than CBs. During the crisis, large IBs are less stable than large CBs.
Beck et al. (2013)	500 banks; one third in the MENA region: 88 IBs ; 422 CBs	1995-2009	Panel data	IBs are better capitalized, more liquid and profitable than CBs, but size effect reduces the advantage.
Rajhi and Hassari (2013)	557 banks; 16 countries (10 MENA): 90 IBs ; 467 CBs	2000-2008	Panel data (GMM)	Positive link between stability (*z-score*) and size
Al-Deehani et al. (2015)	25 banks; GCC: 13 IBs; 12 CBs	2001-2012	GLM (General Linear Model - Multivariate)	IBs are more risk prone and less profitable during the recession
Kamarudin et al. (2014)	74 banks; GCC: 27 IBs; 47 CBs	2007-2011	DEA, GLS (Generalized Least Squares)	IBs are less efficient (cost, profit and income) than CBs
Ouerghi (2014)	94 banks; 5 Oil monarchies Malaysia 30 IBs; 60 CBs	2007-2010	GLS (Generalized Least Squares)	IBs are less efficient and profitable, more prone to credit risk than CBs. Large IBs perform better than large CBs
Performance of Islamic banks (IBs) without comparison with conventional banks (CBs)				
Wahidudin et al. (2014)	91 banks; 19 countries (14 MENA): 69 IBs; 21 IBs (including Southeast Asia)	2004-2009	Panel data	Higher operation costs for MENA IBs.
Ben Hassine and Limani (2014)	22 IBs; MENA countries	2005-2009	Panel data	Inefficiency is rather technical or organisational than regulatory or allocative.
Trad et al. (2016)	78 banks; 13 countries: 12 MENA (74 IBs) + Pakistan (4 IBs)	2004-2013	Panel data (GMM)	Profitability (ROA, ROE) and liquidity risk negatively correlated. IBs well capitalized. Ambiguous impact of macroeconomic variables.

Source: Authors

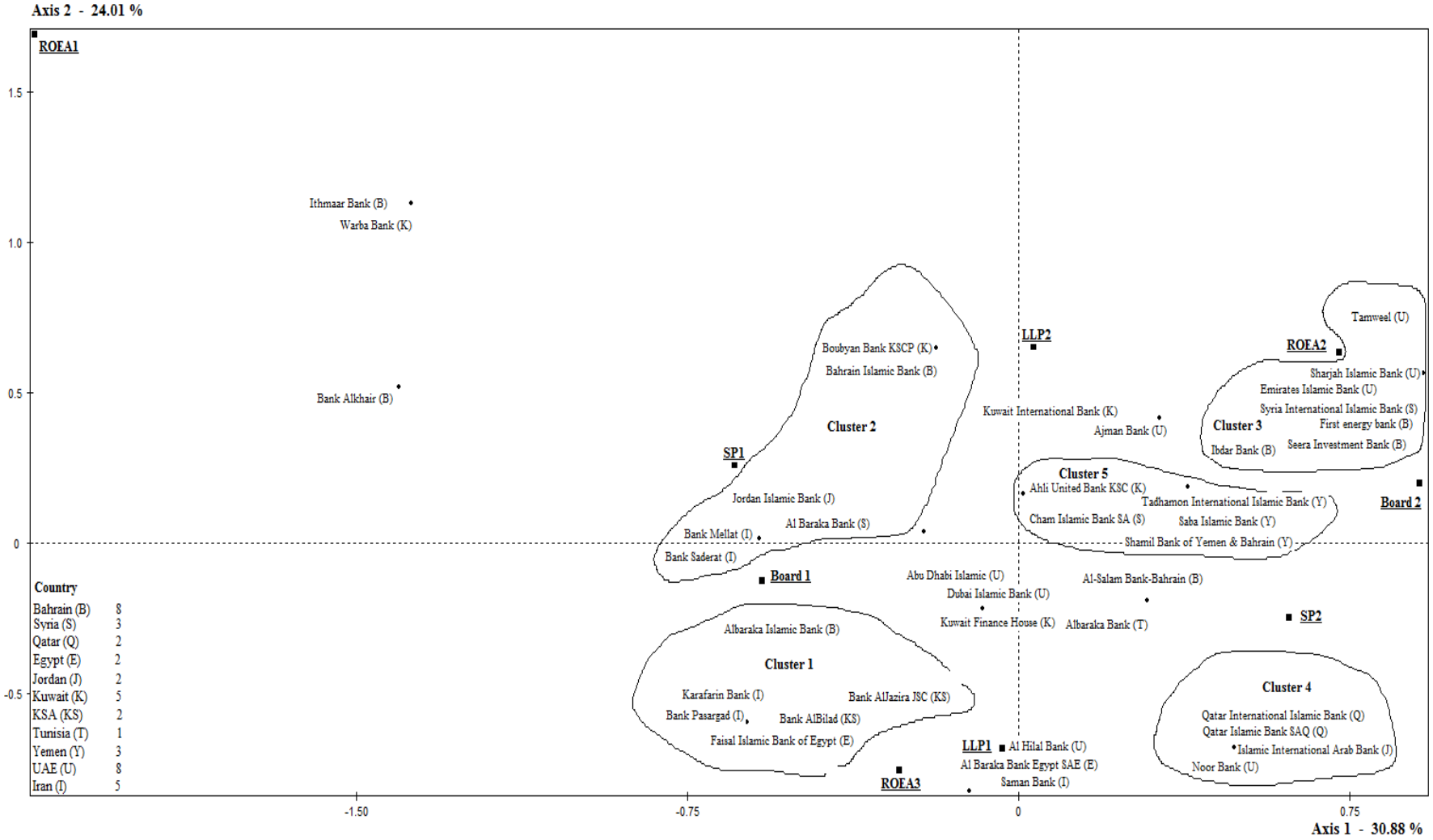
Table A2. Correlation matrix

	ROAA	*ROAE*	*LLP*	*Sharia Board*	*Specific contracts*	*RC*	*LTLR*	*STLR*	*Lnzscore*	*Size*	*Concen-tration*	*Age*	*Ownership*	*Oil-monarchy*	*Inflation*	*GDP growth*
ROAA	1.00															
ROAE	0.76*	1.00														
LLP	-0.28*	-0.22*	1.00													
Sharia Board	-0.13*	-0.29*	-0.08	1.00												
Specific contracts	0.02	-0.001	0.13 *	0.11*	1.00											
CR	-0.17*	-0.17*	0.05	0.07	0.18*	1.00										
LTLR	0.22*	0.30*	-0.07*	-0.17*	0.32*	-0.54*	1.00									
STLR	-0.15*	-0.17*	0.008	0.07	-0.16*	0.02	-0.49*	1.00								
Lnzscore	0.13*	0.16*	-0.1	-0.10*	0.15*	-0.13*	0.16*	-0.01	1.00							
Size	0.02	-0.11*	-0.14*	0.62*	0.26*	-0.16*	0.05	0.003	-0.05	1.00						
Concentration	0.16*	0.19*	-0.11*	0.10*	-0.03	-0.15*	-0.04	-0.05	0.03	0.34*	1.00					
Age	0.01	0.12*	-0.06	-0.24*	0.14*	-0.03	0.10*	-0.25	0.009	-0.23*	-0.06	1.00				
Ownership	0.09	0.09	0.04	-0.20*	0.08	0.02	0.35*	-0.42*	0.06	-0.05	-0.13*	0.07	1.00			
Oil-monarchy	0.02	-0.04	0.006	0.03	0.19*	-0.08	0.33*	-0.1	-0.13*	0.10*	-0.33*	0.07	0.29*	1.00		
Inflation	0.09	0.21*	0.14*	-0.18*	-0.16*	0.23*	-0.20*	0.02	-0.11*	-0.26*	0.09	0.06	-0.23*	-0.39*	1.00	
GDPGrowth	0.12*	0.06	-0,13*	0.19*	0.07	-0.15*	-0.02	0.11*	-0.002	0.21*	0.12*	-0.12	-0.07	0.06	-0.36*	1.00

* $p<0.1$

Source: Authors

Figure 1. Clusters according to axes 1-2



Source: Authors, from Bankscope and bank reports