Regulation of Islamic banks:
Basel III capital framework and profit-sharing investment accounts

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Abstract: This paper theoretically examines the impact of capital requirements on Islamic banks. Given the large use of profit-sharing investment accounts (PSIA) in Islamic banking and the recent implementation of Basel III capital framework, we develop a simple model where banks are able to offer PSIA contracts under a regulation applying risk-weighted capital ratios and leverage ratio restrictions. We find that banks with high or low returns on assets prefer "conventional" banking, while banks with intermediate returns on assets operate as Islamic banks, by selecting PSIA instead of deposits. We further highlight that capital requirements tend to increase this incentive to opt for Islamic banking, especially when Islamic banks benefit from a less competitive environment and from a locally tailored capital regulation.

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1

1 Introduction

In December 2010, consequently to the global financial crisis of 2007-2008, the Basel Committee on Banking Supervision (BCBS) has suggested a new set of reform measures, known as *Basel III*. This financial turmoil put the spotlight back on the issue of capital requirements, through the importance of maintaining sufficient levels of capital to absorb losses. As a response, Basel rules now include leverage ratio restrictions in addition to risk-weighted capital ratios[1]. Such a regulatory reform aims at improving the robustness of the global banking sector, in order to meet the challenge that a changing financial environment presents.

Another consequence of the global financial crisis is an enhancing of the rapid growth of a specific banking system, based on the principles of no interest-bearing deposit accounts and profit-sharing investment contracts, also known as *Islamic banking*[2]. This growth is also perceptible in non-Muslim jurisdictions (e.g. Europe and North America), implying that Islamic banks are no longer a simple response to the religious duty of Muslim economic agents but also a new offer catering for demands of new consumers. Nowadays, Basel capital framework applies in several jurisdictions where Islamic banks are present, while this set of regulatory measures is initially suggested for conventional banking institutions.

The objective of this paper is to theoretically investigate how Islamic and conventional banks react to the Basel III capital regulation. As profit-sharing investment accounts help to decrease the overall risk faced by banks, it is here interesting to consider the loss absorbency of these contracts (mainly offered by Islamic banks), in order to examine banks' incentives to act as Islamic or conventional banks. For this purpose, the Islamic Financial Services Board (IFSB) provides prudential standards, with prescriptions to tailor for Islamic banks the conventional capital regulation. Besides, IFSB guidelines also allow national regulators to implement local adjustments relative to Islamic

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[1]See BCBS (2010) for the original guideline, and BCBS (2014) for a more recent text relative to the leverage ratio regulation.

[2]For further details regarding the growth of Islamic banking, see Islamic Financial Services Board (2016).

banks' risk-weighted capital requirements. Consequently, around two out of three regulators of jurisdictions allowing Islamic banking activities choose to tailor conventional banking capital requirements, before applying them for their local Islamic banks (Song & Oosthuizen, 2014). Our model therefore considers a regulatory framework where capital requirements for conventional and Islamic banks are both suggested at an international level, then we analyse how banks adapt their behavior when Islamic banking activities benefit from locally adjusted capital requirements.

In order to complete this objective, we also take into account different degrees of competition between conventional and Islamic banking activities. Given religious motivations of some Muslim customers, Islamic banks may indeed benefit from captive customers: fervent religious believers look for *Sharia*-compliant financial products, and hence are reluctant to opt for conventional financial products (Beck et al., 2013). Concomitantly, religiosity does not prevent Islamic banks to attract customers from conventional banks and, as a consequence, Islamic banks may face less competition than conventional banks in a dual banking system (Meslier et al., 2017; Turk-Ariss, 2010). This occurs especially in jurisdictions with a strong presence of Muslim population. An extension of our model thus aims at incorporating this potential competition differential between conventional and Islamic banks, by assuming a higher return on assets for Islamic banking activities, driven by a relative less competitive environment.

Through this means, this paper contributes to the current debate on the regulation of Islamic banks. Academic literature has developed an extensive theoretical work on conventional bank capital regulation. Relation between risk-weighted capital requirements and bank risk-taking behavior is examined by Kim & Santomero (1988), Giammarino et al. (1993), Besanko & Kanatas (1996), Repullo & Suarez (2004), and summarized in Freixas & Rochet (2008) and Camara et al. (2013). More recently, the interest in new leverage ratio restrictions motivated some theoretical papers investigating how such requirements impact banking stability through conventional bank behavior (Blum, 2008; Rugemintwari, 2011; Kiema & Jokivuolle, 2014; Spinassou, 2016). We can also note that many recent empirical papers fo-

cus on the Islamic bank risk-taking: Cihak & Hesse (2010), Hassan & Dridi (2010), Abedifar et al. (2013), Baele et al. (2014). Nevertheless, very little theoretical work has been done on Islamic bank behaviour (Aggarwal & Youssef, 2000; Muljawan et al., 2004), especially about banking regulation: to the best of our knowledge, academic literature does not provide a theoretical investigation between Basel III capital requirements and Islamic banking.

To better understand implications of BCBC/IFSB capital requirements for Islamic banking, we build a simple model where banks select their activity (safe or risky). This banking activity can be financed by raising deposits and offering profit-sharing investment accounts, as *Shariah*-compliant financial investments on the basis of *Mudharabah* contracts principles. We find that banks do not offer such contracts without capital requirements, while banks with an intermediate return on assets use PSIA instead of interest-bearing deposits when a risk-weighted capital regulation is imposed. Furthermore, as a first step, our results show that the implementation of leverage ratio restrictions lowers the expected profit of Islamic banks. Nevertheless, as a second step, this new capital regulation can lead to a higher number of Islamic banks, especially when the national regulator proceeds to a strong reduction of local Islamic banks capital requirements, and/or when Islamic banks benefit from a relative less competitive environment.

The model is now developed in Section 2. Section 3 presents our results when different capital requirements are imposed on banks, with regulatory frameworks respectively in the spirit of Basel II and Basel III. Section 4 presents an extension of our analysis, with consideration for local specificities of dual banking systems, and Section 5 concludes the paper.

2 Model set up

Consider a banking system populated by n independent banks, with total assets normalized to one. Banks can be financed by deposits (D), profit-sharing investment accounts (μ) and capital (K). Deposits are guaranteed by a full deposit insurance, riskless, and with a gross interest rate set to one.

Capital is assumed to be the most expensive source of funding, where the cost of capital is $k > 1$.

A profit-sharing investment account (henceforth "PSIA") is a contract between the bank and an investor, where gains and losses are shared on the basis of a *Mudharabah* contract. We denote *Islamic banks* (henceforth "IBs") all banks offering PSIA instead of deposits, since interest-bearing deposits are explicitly forbidden by the rules of traditional Islamic finance. On the other hand, banks raising deposits are henceforth called *conventional banks* ("CBs"). In other words, banks choose to be CBs or IBs by choosing their source of funding. The gain/loss shared with the investor is $r \in]\frac{1}{2}, 1[$, thus giving the bank the share $1 - r$.

Each bank selects its type of activity: *risky* or *safe*. Safe banks have a gross rate of return on assets $R > 1$, and the return on assets of risky banks have the following distribution:

$$
\begin{cases}
R + \Delta R & \text{with probability } p \\
0 & \text{with probability } 1 - p
\end{cases}
\tag{1}
$$

where $\Delta R > 0$ is the excess return on assets from additional risk taking. We assume that banks have different skills to manage their risky projects, leading to different values of ΔR in the banking system, given by nature with $\Delta R \in [\underline{\Delta R}; \overline{\Delta R}]$. The probability density function of ΔR is denoted $f(X)$, with

$$
1 = \int_{\underline{\Delta R}}^{\overline{\Delta R}} f(\Delta R) \, \mathrm{d}\Delta R
\tag{2}
$$

When a risky bank fails (with probability $1 - p$), the bank bears losses equal to the amount of capital plus its share of the PSIA. Due to its limited liability, the amount of deposits does not appear in losses in the event of bankruptcy. We therefore distinguish two expected profits, according to the bank activity:

$$
\pi_{noreg}^{safe} = R - (1 - K - \mu) - \mu(1 + rR) - Kk
\tag{3}
$$

as the safe banks profit, and

$$\pi_{noreg}^{risky} = p((R+\Delta R)-(1-K-\mu)-\mu(1+r(R+\Delta R))-Kk)-(1-p)(K+(1-r)\mu) \tag{4}$$

as the expected risky banks profit, with $1 - K - \mu = D$. Evaluating these two expected profits, we can then state:

Result 1. *Without capital regulation, both safe and risky banks prefer the conventional banking : banks do not offer PSIA and select a level of deposits equal to 1.*
 Proof. We find $\frac{\partial\pi_{noreg}^{safe}}{\partial\mu} = -rR < 0$; $\frac{\partial\pi_{noreg}^{safe}}{\partial K} = 1-k < 0$; $\frac{\partial\pi_{noreg}^{risky}}{\partial\mu} = (2-k)p-1 < 0$; $\frac{\partial\pi_{noreg}^{risky}}{\partial K} = -(1-r)+p(1-r(R+\Delta R+1)) < 0$.

When no capital regulation is applied, safe and risky banks have the respective expected profits:

$$\pi_{noreg}^{safe*} = R - 1 \tag{5}$$

$$\pi_{noreg}^{risky*} = p(R + \Delta R + 1) \tag{6}$$

As a result, in the absence of capital requirements, banks select risky projects when $\Delta R > \frac{(R-1)(1-p)}{p}$. On the other hand, all banks with $\Delta R < \frac{(R-1)(1-p)}{p}$ are safe banks.

3 Bank choice and capital regulation

In this section, we consider an exogenous capital regulation suggested by a supranational committee and then applied by a national regulator. We firstly analyze how a risk-weighted capital regulation affects bank behavior. Secondly, we focus on a Basel III capital framework, by examining the implications of introducing leverage ratio restrictions together with risk-weighted capital requirements.

3.1 Sole risk-weighted capital regulation

We assume a capital ratio $\overline{K} \in]0, 1[$ imposed on safe CBs, and $\overline{K} + \Delta K \in]0, 1[$ the minimum capital ratio for risky CBs.

On the other hand, banks with PSIA benefit from a higher loss absorbency. Indeed, such contracts give to banks the capacity to pass-through losses to investors: the higher the amount of PSIA as a source of funds, the better the solvency of the bank[3]. This loss absorbency is the main motivation of *Islamic Financial Services Board* adjustments, where a reduction of capital requirements is allowed for banks holding a large share of PSIA[4]. To incorporate this decrease of the capital regulation in our analysis, we assume a capital ratio equal to $\overline{K} + \Delta K (1 - \frac{\mu}{1 - \overline{K}})$ for risky banks using PSIA. In other words, this capital ratio is equal to $\overline{K}$ (i.e. similar to safe CBs capital requirements) when the bank does not raise deposits, and $\overline{K} + \Delta K$ (i.e. similar to risky CBs capital requirements) when the bank does not use PSIA.

As expected profits described in equation (3) and equation (4) are decreasing functions of capital K, banks only hold the required capital. Safe banks profit is then

$$\pi_{rw}^{safe} = R - (1 - \overline{K} - \mu) - \mu(1 + rR) - \overline{K}k \tag{7}$$

with $\frac{\partial \pi_{rw}^{safe}}{\partial \mu} = -rR < 0$: safe banks prefer conventional banking and do not offer PSIA to investors.

$$\pi_{rw}^{safe*} = R - (1 - \overline{K}) - \overline{K}k \tag{8}$$

The expected risky banks profit is now

$$\pi_{rw}^{risky} = p((R + \Delta R) - (1 - (\overline{K} + \Delta K(1 - \frac{\mu}{1 - \overline{K}})) - \mu) - \mu(1 + r(R + \Delta R)) -$$

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[3]See Dalla Pellegrina (2007), Lopez Mejia et al. (2014) and Song & Oosthuizen (2014) for further details about the regulation of Islamic banks and its future challenges.

[4]In the standard formula provided by the IFSB for the computation of risk-weighted capital requirements for IBs, the assets financed by investment account holders are even excluded.

$$(\overline{K} + \Delta K(1 - \frac{\mu}{1 - \overline{K}}))k) - (1 - p)((\overline{K} + \Delta K(1 - \frac{\mu}{1 - \overline{K}})) + (1 - r)\mu) \quad (9)$$

with $\frac{\partial \pi_{rw}^{risky}}{\partial \mu} = \frac{\Delta K(1 - (2-k)p)}{1 - \overline{K}} + (r + p - 1) - pr(R + \Delta R + 1)$. The evaluation of this new expected risky banks profit leads to the following result:

Result 2. *When a sole risk-weighted capital regulation is implemented, risky banks with $\Delta R > \rho'_{rw}$ raise deposits instead of offering PSIA contracts ($\mu = 0$), with $\rho'_{rw} = \frac{\Delta K(1 - (2-k)p)}{(1 - \overline{K})pr} + \frac{r + p - 1}{pr} - R - 1$. Otherwise, risky banks are IBs and hence finance their activity with PSIA and capital (no deposit).*

    Proof.   Follows straightforwardly from equation (9).

We thus obtain the expected risky CBs profit:

$$\pi_{rw}^{riskyCB*} = p(R + \Delta R - 1) - (\overline{K} + \Delta K)(1 - p(2 - k)) \quad (10)$$

and the expected risky IBs profit:

$$\pi_{rw}^{riskyIB*} = p((\Delta R + R)(1 - r(1 - \overline{K})) + (\overline{K} - 1)(k + 1)) - (1 - p)(\overline{K} + (1 - \overline{K})(1 - r))$$
$$(11)$$

Similarly to the previous section, we can evaluate the expected profit of safe banks and risky banks, then we obtain:

Result 3. *There exists a threshold $\rho''_{rw} = \frac{\Delta K(1 - (2-k)p) - (1-p)(1 - (2-k)\overline{K} - R)}{p}$, with $\rho''_{rw} < \rho'_{rw}$ and where banks with $\Delta R > \rho''_{rw}$ select risky projects, while banks with $\Delta R < \rho''_{rw}$ select the safe activity.*

    Proof.   Follows straightforwardly from equation (8), equation (10) and equation (11).

The previous result is sketched by Figure 1. The excess return on assets ΔR is clearly key in determining whether Islamic or conventional banking is preferable, and whether banks have to opt for safe or risky activities. Within our profit-maximisation perspective, the implementation of capital requirements now increases the number of Islamic banks, while incentives to act as Islamic banks do not exist in absence of capital regulation. We can see that a banking system with high returns on assets includes a large number of

CBs (i.e. with a large concentration of banks close to $\overline{\Delta R}$), while a banking system with lower returns on assets incorporates a more important number of IBs. These findings are in line with the current expansion of Islamic finance in several countries. The 2007-2008 banking crisis reduced indeed the overall return of banking activities, while the Islamic banking system is growing faster than the conventional banking system over the past decade[5].

Figure 1: Bank choice with risk-weighted capital requirements
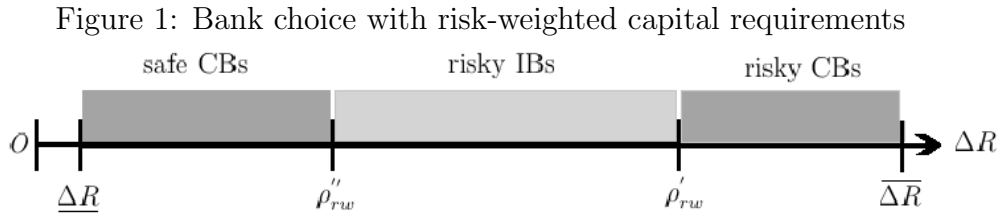
3.2 Leverage ratio and risk-weighted capital regulation

In this subsection, we consider a minimum leverage ratio K^{lr}, suggested by the supranational authority in addition to the previous risk-weighted capital ratio, with $K^{lr} \in]\overline{K}, (\overline{K} + \Delta K)[$. In other words, this new regulation does not affect risky CBs because they already hold the highest capital ratio $\overline{K} + \Delta K$. Note that the addition of this leverage ratio regulation allows us to rewrite the capital regulation relative to the amount of PSIA, as $K^{lr} + (\Delta K - \gamma)\left(1 - \frac{\mu}{1-\overline{K}}\right)$, where $\gamma = K^{lr} - \overline{K} < \Delta K$. In a nutshell, a high value of γ represents an important increase of the regulatory stringency, with the implementation of a highly binding regulatory constraint.

We obtain the new safe banks profit:

$$\pi_{lr}^{safe} = R - (1 - K^{lr} - \mu) - \mu(1 + rR) - K^{lr}k \tag{12}$$

with $\frac{\partial \pi_{lr}^{safe}}{\partial \mu} = -rR < 0$. As before, evaluation of the safe banks profit shows that safe banks prefer conventional banking, with $\mu = 0$.

$$\pi_{lr}^{safe*} = R - (1 - K^{lr}) - K^{lr}k \tag{13}$$

[5]See Malaysian International Islamic Financial Center (2014) for further details.

The implementation of a leverage ratio affects the expected risky banks profit as follows:

$$\pi_{lr}^{risky} = p((R+\Delta R)-(1-(K^{lr}+(\Delta K-\gamma)\left(1-\frac{\mu}{1-\overline{K}}\right))-\mu)-\mu(1+r(R+\Delta R))-$$

$$(K^{lr}+(\Delta K-\gamma)\left(1-\frac{\mu}{1-\overline{K}}\right))k)-(1-p)((K^{lr}+(\Delta K-\gamma)\left(1-\frac{\mu}{1-\overline{K}}\right))+(1-r)\mu)$$
$$\tag{14}$$

with $\frac{\partial \pi_{lr}^{risky}}{\partial \mu} = \frac{p+r-1+\Delta K(1-p(2-k))-K^{lr}-p(r(R+\Delta R+1)-(2-k)K^{lr})+\overline{K}(2-r-p(3-k-r(R+\Delta R+1)))}{1-k}$.

Consequently, we can state:

Result 4. *With the addition of leverage ratio restrictions to risk-weighted capital ratios, risky banks with $\Delta R > \rho_{lr}'$ do not offer PSIA contracts ($\mu = 0$), where $\rho_{lr}' = \frac{\Delta K(1-(2-k)p)-\gamma(1-(2-k)p)}{(1-\overline{K})pr} + \frac{r+p-1}{pr} - R - 1$. On the other hand, risky banks with $\Delta R < \rho_{lr}'$ finance their activity with PSIA and do not raise deposits (IBs).*

<u>*Proof.*</u>   Follows straightforwardly from equation (14).

The expected risky CBs profit is here equal to equation (10), while the expected IBs profit is now as follows:

$$\pi_{lr}^{riskyIB*} = p((\Delta R + R)(1 - r(1 - K^{lr})) + (K^{lr} - 1)(k + 1))-$$

$$(1 - p)(K^{lr} + (1 - K^{lr})(1 - r)) \tag{15}$$

Evaluation of equation (10) and equation (15) is summarized in the following result.

Result 5. *There exists a threshold $\rho_{lr}'' = \frac{\Delta K(1-(2-k)p)-(1-p)(1-(2-k)\overline{K}-R)-(k-1)\gamma}{p}$, where $\rho_{lr}'' < \rho_{lr}'$, under which banks select the safe activity. On the other hand, when $\Delta R > \rho_{lr}''$, banks select the risky activity.*

Thresholds ρ_{lr}' and ρ_{lr}'' are respectively lower than ρ_{rw}' and ρ_{rw}'', meaning that the implementation of leverage ratio restrictions increases banks' incentives to act as risky CBs. These findings are sketched in Figure 2.

10

Figure 2: Bank choice under Basel III capital regulation
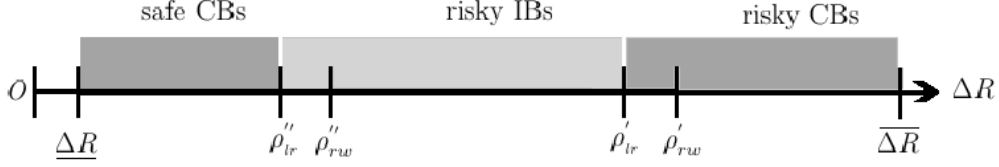
Such capital requirements increase the number of IBs when

$$\int_{\rho_{lr}''}^{\rho_{rw}''} f(\Delta R)\, \mathrm{d}\Delta R > \int_{\rho_{lr}'}^{\rho_{rw}'} f(\Delta R)\, \mathrm{d}\Delta R \qquad (16)$$

Otherwise, the number of CBs is larger when leverage ratio restrictions are implemented with a risk-weighted capital regulation.

Nevertheless, Result 4 and Result 5 respectively show that ρ_{rw}'' and ρ_{lr}'' are unaffected by a change of the share r borne by PSIA holders; while, for all $\Delta\rho' = \rho_{rw}' - \rho_{lr}'$, we find $\frac{\partial \Delta\rho'}{\partial r} = \frac{\gamma(1-(2-k)p)}{(K-1)pr^2} < 0$. In other words, as the difference of ρ_{lr}' and ρ_{rw}' is driven by the decrease of the expected IBs profit that follows the addition of leverage ratio restrictions, IBs can moderate this reduction by offering PSIA contracts with a higher share r given to the investor. In a nutshell, this regulatory framework increases the IBs' incentives to benefit from the loss absorbency of PSIA contracts, by the banks' will to minimize their expected losses through this specific source of funding. In this simple model, we assumed an exogenous value of r, driven by the bank competitive pressure. However, one could state that when IBs are able to select an optimal share r in PSIA contracts, the implementation of a leverage ratio regulation reduces the share $1 - r$ borne by banks. In summary, the proportion of IBs in the banking system may be expanded by a Basel III capital regulation[6].

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[6]The consideration of this point in another model could represent an interesting extension of this current work.

11

4 Local regulation and degrees of competition in dual banking systems

In this section, we go one step further by providing an extension of our analysis, with assumptions relative to two local specificities of banking systems where conventional and Islamic banks operate alongside. We build hitherto a model where banks choose to be Islamic or conventional banks only within a profit-maximisation perspective, without considering religious beliefs of banks *managers*. Here, we take into account religious beliefs of banks *customers*, by assuming that some customers of IBs may be reluctant to switch to CBs. This assumption about captive customers adhering to religious principles is represented by an excess return for IBs, denoted ϵ: a high value of ϵ means that IBs benefit from a relative low competitive environment, and hence where CBs face strong difficulties to attract IBs' customers.

On the other hand, the capital regulation applied in dual banking systems is currently very heterogenous, since many national regulators decide to tailor capital requirements initially suggested at an international level, before imposing them to local IBs (Song & Oosthuizen, 2014). This heterogeneity of national IBs capital regulation is driven by the IFSB guideline, which lets at the national regulators' discretion a "factor of reduction" relative to the computation of domestic IBs risk-weighted assets (see IFSB, 2013). In order to consider this point in our analysis, we assume in this section a similar factor of reduction, denoted α, with $\alpha \in [0,1]$. A strong value of α represents therefore an important reduction of IBs capital requirements at the local level, compared to CBs requirements.

In summary, these new assumptions do not affect expected CBs profits, while the expected IBs profit is then:

$$\pi_{loc}^{riskyIB*} = (p((R + \Delta R + \epsilon) - (1 - (K^{lr} + (\Delta K - K^{lr} + K)(1 - \alpha)) - \mu)$$

$$-\mu(1 + r(R + \Delta R + \epsilon)) - (K^{lr} + (\Delta K - K^{lr} + K)(1 - \alpha))k)$$

$$-(1 - p)((K^{lr} + (\Delta K - K_{lr} + K)(1 - \alpha)) + (1 - r)\mu)) \qquad (17)$$

Evaluating now expected profits of IBs and CBs, we can then state:

Result 6. *There exists two thresholds, denoted ρ''_{loc} and ρ'_{loc}, where banks decide to operate as risky IBs $\forall \Delta R \in [\rho''_{loc}, \rho'_{loc}]$. Otherwise, banks choose to act as CBs, with a safe activity $\forall \Delta R < \rho''_{loc}$ and with a risky activity $\forall \Delta R > \rho'_{loc}$.*

Proof. The expected risky CBs profit is larger than the expected IBs profit for all $\Delta R > \rho'_{loc} = \frac{\alpha(\Delta K + K - K^{lr})(1-(2-k)p)-(1-r)+p(S+1-r)}{pr} - R - S$. On the other hand, the expected IBs profit is lower than safe CBs profit for all $\Delta R < \rho''_{loc} = \frac{((1-\alpha)(K+\Delta K)+\alpha K^{lr})(1-p(2-k))-K^{lr}(k-1)+R-r(1-p)}{p(1-r)} - R - S$, with $\rho''_{loc} < \rho'_{loc}$.

As before, banks with intermediate returns on assets select Islamic banking. We observe here that the bank choice is affected by the excess return ϵ driven by the degree of competition differential, the local adjustment of capital requirements imposed on IBs α, and the strength of leverage ratio restrictions K^{lr}.

More precisely, comparative statics for Result 6 show that ρ'_{loc} is greater the larger the factor of reduction α and the excess return ϵ. On the other hand, this threshold is smaller the greater the leverage ratio restriction K^{lr}:

$$\frac{\partial \rho'_{loc}}{\partial \alpha} = \frac{(\Delta K + K - K^{lr})(1-p(2-k))}{pr} > 0 \tag{18}$$

$$\frac{\partial \rho'_{loc}}{\partial \epsilon} = \frac{1}{r} - 1 > 0 \tag{19}$$

$$\frac{\partial \rho'_{loc}}{\partial K^{lr}} = -\frac{\alpha(1-p(2-k))}{pr} < 0 \tag{20}$$

Besides, we find that ρ''_{loc} is smaller the larger the factor of reduction α and the excess return ϵ. Nevertheless, relationship between this threshold and the leverage ratio restriction K^{lr} is ambiguous:

$$\frac{\partial \rho''_{loc}}{\partial \alpha} = -\frac{(\Delta K + K - K^{lr})(1-p(2-k))}{p(1-r)} < 0 \tag{21}$$

13

$$\frac{\partial \rho_{loc}^{''}}{\partial \epsilon} = -1 \qquad (22)$$

$$\frac{\partial \rho_{loc}^{''}}{\partial K^{lr}} = -\frac{\alpha(1 - p(2 - k)) - (k - 1)}{p(1 - r)} \qquad (23)$$

We observe that, under a Basel III capital framework, banks have more incentives to operate as IBs in local banking systems overseen by regulators proceeding to important reductions of IBs capital requirements, and where the degree of competition differential between Islamic and conventional banking activities is strong. In other words, when IBs benefit from a large captive clientele and from a tailored risk-weighted capital regulation, bank risk-taking following the implementation of leverage ratio restriction is moderated. In a nutshell, the local environment in dual banking systems relative to the bank competition and capital requirements adjustments is also determining to analyze how Basel III rules affect banks' behavior.

5 Concluding remarks

This study investigates Islamic and conventional bank behavior under Basel III capital requirements and IFSB standards, through a simple theoretical model. Within a profit-maximisation perspective (i.e. without religious incentives), our findings show that Islamic banking becomes attractive when a capital regulation applies and with an intermediate banks' return on assets. Under these conditions, banks therefore choose not to raise deposits but they propose profit-sharing investment accounts to customers. On the other hand, banks with low or high returns on assets prefer the conventional banking, and hence raise interest-bearing deposits while this source of funding is forbidden by rules of the traditional Islamic finance. Besides, in a dual banking system (where Islamic and conventional banks operate alongside), we find that the implementation of leverage ratio restrictions in addition to a risk-weighted capital ratio reduces the number of safe banks, and increases the number of risky conventional banks.

Furthermore, our model takes into account local specificities of dual banking systems in two ways. It is widely agreed that conventional banks face

more difficulties to attract Muslims customers than Islamic banks, due to religious motivations of these customers. We thus investigate bank behavior under Basel III capital requirements when Islamic banks benefit from a less competitive environment than conventional banks. On the other hand, we assume that national regulators are able to tailor international capital requirements for local Islamic banks, as allowed by standards of the Islamic Financial Services Board. Our results therefore show that incentives to act as risky conventional banks under the Basel III regulation are lower when the degree of competition differential is high and/or when local regulatory adjustments for Islamic banks are important. In summary, the presence of such local specificities mitigate the increase of risk-taking that follows the implementation of leverage ratio restrictions in dual banking systems.

This paper highlights that the strengthening of capital regulation may increase incentives to operate as Islamic banks, as these banks benefit from higher abilities to absorb losses, and thus benefit from lower capital requirements. This point provides a new explanation of the substantial growth of Islamic banking activities over the last decade, since the global banking crisis of 2007-2008 led to a reduction of banks' returns on assets and to a tighter regulatory framework. Overall, this analysis stresses the need to take into account specificities of Islamic banking in international regulatory guidelines, especially when many conventional banks nowadays decide to engage in Islamic banking activities as a response to the current financial environment.

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