Banks, Funds, and Risks in Islamic Finance: Literature & Future Research Avenues

Jocelyn Grira , Chiraz Labidi

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Highlights

We discuss current state of research in Islamic banking, Islamic fund management, and Islamic risk management

We shed some light on current regulatory challenging in dealing with dual banking systems

We explore promising research avenues in Islamic finance

Banks, Funds, and Risks in Islamic Finance: Literature & Future Research Avenues

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Jocelyn Grira
Qatar University, College of Business & Economics
Doha, Qatar
jocelyn@qu.edu.qa

Chiraz Labidi
United Arab Emirates University, College of Business & Economics
United Arab Emirates
labidi@uaeu.ac.ae

Abstract

In this paper, we present the current state of research in Islamic finance by focusing on three spheres of knowledge: Islamic banking, Islamic fund management, and risk management. We also discuss regulatory issues

while systematically referring to conventional finance as a benchmark. We conclude by shedding more light on future research avenues.

Keyword: *Islamic Finance; Islamic Banking; Islamic Funds; Islamic Risk Management*

1. Introduction

Recent literature documents the steady growth of Islamic finance globally. According to Abedifar et al. (2016), Islamic finance has been growing at an average yearly rate of 15% to 20%. Moreover, during the Global Financial Crisis (GFC), Islamic finance has proven to be more resilient to severe financial shocks compared to conventional finance (Bitar et al., 2017; Hasan and Dridi, 2010). This raised attention to and awareness about Islamic finance among scholars, practitioners, and policymakers alike.

In this paper, we look at research in Islamic finance from a demand point of view, in the sense that Muslim individuals need financial services that comply with their set of beliefs (Grira et al., 2016). Banking services, investment services, as well as insurance services that fit Muslims' preferences are then of great interest for a large population around the globe. Indeed, the Islamic Financial Services Industry (IFSI), which includes three main sectors: banking, capital markets and Takaful (Islamic insurance) has reached in 2017 for the first time a total worth surpassing USD 2 trillion (IFSB, 2018) and is expected to reach US$ 3.8 trillion by 2022 (ICD Thomson Reuters, 2017). Although the expansion of Islamic banks has mostly been recorded in developing countries with a Muslim-majority population (Imam and Kpodar, 2013; Meslier et al., 2017), we are observing their fast penetration in some developed countries (e.g., the United Kingdom). A similar expansion is observed in Islamic investment and insurance.

It is, however, noteworthy, that the Islamic banking sector dominates the industry with 76% of the total IFSI assets in 2017 followed by the Islamic capital market segment representing 23% of the IFSI assets leaving merely a 1.3% contribution to the Takaful sector (IFSB, 2018). Accordingly, we choose in this paper to focus on Islamic banking and Islamic investment services, namely Islamic fund management which includes in its investment universe the main components of Islamic capital markets (i.e. Islamic equities and Sukuk).[1] We also emphasize, throughout the paper, the importance of risk management in Islamic finance. While many papers compare the performance of the different entities of the IFSI (Islamic banks, Islamic funds, …) to their conventional counterparts, it is of utmost importance to shed light on the nature of the risks that affect

[1] See Khan et al. (2020) for a thorough literature survey on Takaful.

the industry and drive the performance and the Capital Adequacy Ratios (CARs) of its players. In principle, the risk management mechanisms that are available under the Islamic finance framework tend to emphasize risk sharing rather than risk transfer and limit the use of conventional hedging mechanisms such as derivatives. This may have a double-edged effect as it limits for example the capacity of Islamic banks to manage their balance sheets but it also leads to a better resilience than conventional banks. Moreover, *Shariah* compliance risk raises unique challenges as a loss of confidence in the *Shariah* compliance framework may affect the liquidity and solvency of the Islamic financial system and may have serious implications in terms of systemic risk and financial stability.

While one would expect that the unique risks of the Islamic finance industry should lead to well-tailored prudential and risk management standards, many authors argue that, due to competition, Islamic banking is not very different from conventional banking and many risk management techniques are merely replicas of conventional financial instruments and contracts (e.g. Chong and Liu, 2009; Abdul-Rahman, 2014).

The objective of our research work is to contribute to previous literature in Islamic banking, Islamic fund management, and risk management in Islamic finance by discussing the current state of knowledge in these three spheres, shedding more light on the recent trends, and suggesting future research avenues. We believe that our work is of interest to all customers in the Islamic financial services industry, Islamic bankers, managers of Islamic funds, and finally regulators and policymakers. As Islamic finance continues its rapid growth, its growing complexity and inherent risks pose numerous challenges to all concerned players and in particular, to supervisory authorities and central banks who are the guarantors of financial stability. A good understanding of the risks involved would help them better regulate and face the rapid evolution of the sector to which is added the disruption brought by fintech innovations. In this regard, we contribute to the ongoing debate about Islamic banking, Islamic fund management, and risk management in Islamic finance compared to the equivalent in conventional finance. Moreover, we discuss the challenges faced by regulators who need to build common supervisory frameworks that integrate both financial systems: Islamic and conventional.

Finally, we present the current state of knowledge and suggest promising futures research avenues.

The remainder of this paper is organized as follows. Section 2 discusses Islamic banking issues and presents the current state of knowledge on the topic. Section 3 discusses Islamic fund management and provides insights on the most recent findings. Section 4 offers an overview of risk management in Islamic finance. Section 5 discusses regulatory challenges. Section 6 provides suggestions for future research avenues and concludes.

2. Islamic banking

Previous literature investigates the differences between Islamic banks against their conventional peers. Abedifar et al. (2015) comprehensively discuss previous findings and provides a view on the most relevant research done on the topic. In their study, they present a historical perspective on how Islamic banking evolved over time since the early years of Islam until today. Their paper discusses the Egyptian experience with Islamic banking, through Nasser Social Bank, established in 1971, then the Emirati experience who launched Dubai Islamic bank in 1975, and the important establishment of the Islamic Development Bank in Saudi Arabia in the same year. While the historical evolution of Islamic banking is important and has been documented in several studies (e.g. Iqbal and Molyneux, 2005), different other approaches have been adopted to discuss contributions to the Islamic banking literature. For instance, several studies investigated the performance of Islamic banks and their efficiency compared to their conventional peers (e.g. Abdul-Majid et al., 2010; Aggarwal and Yousef, 2000; Baele et al, 2014; Beck et al., 2013). Alternatively, another strand of literature explored Islamic banking from different other perspectives like dividend policy (e.g. Athari et al., 2016), governance (e.g. Mollah and Zaman, 2015), corporate social responsibility (e.g. Mallin et al., 2014), and regulatory issues (e.g. Safiullah, and Shamsuddin, 2018; Smaoui and Ghouma, 2020). complement the discussion on Islamic banking with a particular emphasis on the risk features of the Islamic banking system. Our focus on risk features is motivated by the resilience of Islamic banks during the 2007/2008 GFC as well as by the particular design of Islamic financial products compared to those offered by conventional financial institutions. Furthermore, previous studies have empirically shown how different Islamic banks could be in terms of risk exposure and pricing

(Belkhir et al., 2019; Grira et al., 2019). Our discussion, first, covers the risk features of Islamic banking products; it then analyzes banks' risk exposure and capitalization levels at a second place, and finally presents an overview on the use of financial derivatives as risk mitigation instruments.

Islamic banking products differ from conventional banking ones in the sense that the latter are interest-bearing loans while the former are not. In fact, Islamic banking products could be classified into two groups: the sale-based products and the partnership-based ones. Examples of sale-based products are the cost-plus-sale products (e.g. *Murabaha* contracts), the leasing products (e.g. *Ijarah* contracts), and the commodity *Murabaha* products (e.g. *Tawarruq* contracts). Despite the large debate on what makes Islamic banking products "Islamic" (Khan, 2010), most practitioners agree that sale-based Islamic products could be benchmarked against the interest-bearing conventional products as the internal rate of return on sale-based products could be compared to, while being conceptually different from, the interest rate of return on interest-bearing loans. Other products like *Salam* and *Istisna'a* contracts could be classified as sale-based products even though they are, by construction, considered more as derivatives-like products as such, mostly used for risk management purposes. On the other side, *Mudaraba* contracts, *Musharakah* and diminishing *Musharakah* contracts are partnership-based products where Islamic banks share the risk of the financed projects with the customers who are considered as partners. Accordingly, the risk-sharing feature is one of the main distinguishing characteristics of partnership-based Islamic products: Islamic bank and its customer are both exposed to business and financial risk (including default risk), while conventional banks transfer business risk to the customer and keep being exposed to credit risk. In sum, as the design of Islamic banking products is fundamentally different from conventional banking because of the requirement to be *Shariah*-compliant, Islamic banks has to manage different risk exposures.

Previous research work has already answered the question on whether differences in risk exposure between Islamic banks and conventional banks explain the resilience of the formers during the 2007/2008 GFC compared to the latter (Green, 2010; Mollah and Zaman, 2015). In fact, as Islamic banks are mostly overcapitalized, they were in a better position to absorb financial shocks. In addition, they have large proportions of

government owned equity, specifically in the MENA region, which implies that distressed banks, if any, could rely on government back up. This is consistent with results in Grira et al. (2019) who show that Islamic banks exhibit, on average, higher risk than their conventional peers, which is the government guarantee hypothesis that naturally prevails during periods of financial distress like the 2007/2008 GFC.

It is worth mentioning that unlike conventional banks, and despite their higher risk compared to their conventional peers (on average), Islamic banks make limited use of financial derivatives. In fact, the two above mentioned examples of derivative-like contracts, *Salam* and *Istisna'a*, are exceptions to the basic rule of trade in Islam according to which transactions should be asset-backed, meaning that the existence of the traded asset is required at the time of the transaction. In both cases, *Salam* and *Istisna'a*, agreement takes place initially while delivery of the asset happens later. *Shariah* allows for these exceptions because of the historical use of such contracts during the lifetime of Prophet Mohammed (PBUH) to accommodate farmers and facilitate specific economic activities.[2] The reasons behind prohibition of derivatives in their contemporaneous form is motivated by the harmful consequences of potential speculative strategies. According to the three monotheist religions, not only Islam, money should not generate money, only men's work should do it[3]. Consequently, high risk levels of Islamic banks are more driven by the risk-sharing feature of its contracts, while risk of conventional banks could be driven by lending activities, investment activities, and speculation activities as well.

[2] *Following Abedifar et al. (2015) and Baele et al. (2014) and others, we use interchangeably the terminologies "Prophet (PBUH)" and "Prophet Muhammad (PBUH)" to designate the Prophet Muhammad Ibn Abdullah Ibn Abd Al-Muttalib Ibn Hashim, founder of Islam.*

[3] *The Old Testament makes multiple injunctions against the collection of interest (e.g. Exodus 22:24-25, Leviticus 25:36-37, Deuteronomy 23:20, among others). Subsequently, Christian doctrine inherited its suspicion of usury from Judaism, usury being understood as charging any interest on money, regardless of whether it is excessive or not. The New Testament forbade charging any interest on money. In Luke 6:35, we can read "Lend, hoping for nothing again". Accordingly, for the first few centuries of Christian rule in Europe, usury was regarded as a sin of avarice and was forbidden in all cases. Also, medieval theologians almost universally agreed that the mere collection of interest, at any rate and to any person, constituted a serious sin. Consistently, Islam addressed the usury question in Surat Al-Baqara 2:275 where we can read: "Allah has permitted trade and has forbidden interest", hence making it clear that usury in all forms is prohibited.*

More recently, several interpretations emerged relative to the usury question, hence challenging the orthodoxy in reading the original texts. For example, Catholic Church argued that interest-taking did not constitute usury, as long as it represented the real difference between the value of present and future sums of money. Moreover, Jews interpreted usury as interests charged to fellow Jews, which they forbade, but allowed them to lend money for interest to non-Jews. Consequently, we can reasonably assert that the doctrines of the three Abrahamic religions are, in essence, consistent toward the prohibition of usury; only the definition of usury evolved over time, hence creating apparent divergences in practice. The duality, or coexistence, of both Islamic and conventional banks is an eloquent illustration of these divergences.

The beauty of it is that both banking systems co-exist all together, but serve two pools of economic agents. The first pool is composed with rational individuals maximizing their utility functions over their lifetime horizon. The second pool, interestingly, is built with individuals having a different set of beliefs according to which they maximize their afterlife utility (Azzi and Ehrenberg, 1975; Abedifar et al., 2016). Conventional banks serve the first pool, while Islamic banks serve the second. The challenge is how to regulate, topic discussed in section 5.

3. Islamic fund management

IFSB (2018) reports the existence of 1,161 Islamic funds spread over 34 domicile countries and totaling US$ 67 billion of assets under management, in 2017. Although, the Islamic asset management sector represents merely 4% of total Islamic finance assets, it possesses a high growth potential due to the overall prominence of ethical and impact investment and to a wide untapped investor base and is expected to reach US$ 403 billion by 2022 (ICD Thomson Reuters, 2017).

Islamic funds follow *Shariah* principles preventing them from investing in companies engaged in prohibited activities (conventional finance sector, gambling, weapons…), interest paying instruments, as well as other speculative instruments such as derivatives and hedge funds. An important part of the literature on Islamic mutual funds tends to compare their performance to that of conventional mutual funds and provides conflicting evidence. On one hand, the drastic screening imposed by *Shariah* principles reduces Islamic funds securities universe resulting in less diversified funds susceptible of underperforming conventional funds (Mokhtar et al., 2006; Ayub, 2007; Taib and Isa, 2007; Merdad et al., 2010; Hayat and Kraeussl, 2011; Hoepner et al., 2011; Mansor and Bhatti, 2011; Rubio et al., 2012; Abdelsalam et al., 2014b; Kamil et al., 2014; Nainggolan et al., 2016). In addition to the low diversification effects, many authors tend to explain Islamic funds' underperformance by a lack of experience in active management and a poor market timing ability (Hayat and Kraeussl, 2011; Mohamed and Ashraf, 2015; Peillex et al., 2019).

On the other hand, the exclusion of financial companies and highly leveraged firms may result in more resilience during financial crises therefore leading to the overperformance

of Islamic funds during market downturns (Elfakhani et al., 2005; Abdullah et al., 2007; Rubio, et al., 2012; Ho et al., 2014; BinMahfouz and Hassan, 2012; Walkshaeusl and Lobe, 2012; Alam et al., 2013; Makni et al., 2015; Nainggolan et al., 2016; Boo et al., 2017; Hammami and Oueslati, 2017).

In addition, many papers document mixed or circumstantial results with regard to the relative performance of Islamic funds depending on specific fund styles and/or attributes. For instance, Hoepner et al. (2011) document the underperformance of Islamic funds domiciled in countries with low Muslim population and find a small cap bias. Their findings are supported by Lesser and Walkshäusl (2018) who find that funds domiciled in developed Islamic markets outperform the market benchmarks, conventional funds and Islamic funds from non-Islamic markets during market downturns. They also report a bias towards small caps and growth stocks in Islamic funds' strategies. Reddy et al (2017) and Naqvi et al. (2018) also conclude to a variability in Islamic mutual funds' performance due to differences in styles, asset classes, countries and/or geographical focus.

The question of whether past performance is a key determinant of future performance (persistence) along with other fund characteristics is also of utmost importance. Abdelsalam et al. (2014a) and Makni et al. (2016) attempt to answer it for Islamic mutual funds'. While, Abdelsalam, et al. (2014a) document a significant persistence only for the best performing funds (past winners) suggesting that only positive performance might be driven by active management skills, Makni et al. (2016) report significant negative persistence pointing to a reversal behavior of Islamic funds' returns. Makni et al. (2016) also explore the impact of Islamic funds' characteristics (size, age, family size, management fees, load fees, minimum investment) on the performance and find similar determinants compared to conventional funds.

In another vein, Marzuki and Worthington (2015) and Azmi et al. (2018) examine the flow-performance relationship for Islamic funds and find an asymmetric relationship with Islamic investors being relatively less responsive to poorly performing Islamic funds and reacting more aggressively to positive returns. These results point towards more loyalty of Islamic funds investors probably due to a lack of alternative investment opportunities.

Overall, both the documented underperformance of Islamic funds and the asymmetric flows reaction to negative returns tend to indicate that Islamic funds' investors do not only consider financial gains but also derive a non-financial utility from their investments' compliance with Islamic principles and might therefore be willing to make financial sacrifices for the sake of their religious beliefs (Peillex et al., 2019; Azmi et al., 2018)

4. Risk management in Islamic finance

Risk management is supported by affirmative verses from Quran[4] and Prophetic tradition[5] aiming at effectively managing risks generated in Muslims' worldly activities (Hassan, 2009). The principle called *Sadd Al-dhariah*[6] by Islamic scholars also motivates risk management in Islam finance, principle according to which it is recommended to take precautionary measures aiming at blocking sources of risk that could be harmful to wellbeing of mankind. As argued in Agha and Sabirzyanov (2015), profit is necessarily associated with risk exposure in Islamic finance, with the possibility to manage the different types of risks in accordance to *Shariah* principles[7]. In fact, risks could be avoided (e.g. not contracting a financial product), transferred (e.g. using a Takaful contract), hedged (e.g. using a *Salam* contract), or managed (e.g. collecting payment following default on a lease contract).

[4] *[Joseph] said, "You will plant for seven years consecutively; and what you harvest leave in its spikes, except a little from which you will eat. Then will come after that seven difficult [years], which will consume what you saved for them, except a little from which you will store. Then will come after that a year in which the people will be given rain and in which they will press [olives and grapes]" (Quran 12:47-49)*

'O you, who have believed, when you contract a debt for a specified term, write it down. And let a scribe write [it] between you in justice. Let no scribe refuse to write as Allah has taught him. So let him write and let the one who has the obligation dictate? And let him fear Allah, his Lord, and not leave anything out of it.' (Quran 2:282)

[5] *"O the Messenger of Allah…Should I leave my camel untied and trust in Allah, or should I tie it?" The Holy Prophet (PBUH) replied: "Tie your camel and then trust in Allah" (Al-Tirmidhi, 1998).*

"Trade the money of the orphans, so it will not be eaten (decreased) by zakah" (Malik, 2004).

"Whenever Abbas ibn Abdul Muttalib (may Allah be pleased with him) handed over his assets [camels] for mudarabah to his partner, he stipulated that he should not take the assets across the sea, nor take them down to the bottom of a dry river bed, nor trade them for live animals. If he were to do any of these, he would have to bear the compensation. Word of al-Abbas stipulation reached Rasulullah (PBUH) and he allowed it" (Al-Daraqutni, 2004).

[6] *Linguistically, "Sadd" literally means "blocking", while "Al-dhariah" stands for "means". Accordingly, Sadd Al-dhariah implies blocking the means to what could be harmful to people or society. Since the ultimate objective of Sharia is to protect the interests and benefits of people, sin has been prohibited in Islam, which implies that the path to sin is prohibited too. Applied to finance, the concept of "Sadd Al-dhariah" plays its role as a defensive or preventive tool in order to safeguard the Maqasid as defined by Ibn Ashur (2006) by actively blocking whatever means could hinder the realization of legitimate purposes.*

[7] *Al-Ghazali defines maqasid al-Shari'ah as "promotion of the well-being of the people, which lies in safeguarding their faith (din), their self (nafs), their intellect ('aql), their lineage (nasl) and their wealth (mal)". (Chapra, 2008)*

Interestingly, from a modern risk management perspective, some derivative-like contracts are allowed according to *Shariah* principles. We discussed in Section 2 the *Salam* and *Istisna'a* contracts whereby, like a forward contract, upfront agreement takes place and delivery of the asset occurs in a future date. Other forward-like contracts are permissible in Islamic finance because they reflect the *Wa'ad* (i.e *Promise*) concept. An example is the *Bai Muajjal* contract where payment of goods delivered upfront is differed. Another example is the *Bai al-urbun* contract where payment of upfront deposit takes place, with the agreement to pay the balance upon delivery or, in case of default, the deposit, called *urbun*, is forfeited. In that specific case, the *urbun* could be considered as a premium of an option contract in the sense that if the option contract is breached, the premium is lost. in most of the cases, the *Wa'ad* concept is used along with the *Sarf* concept, i.e. in the exchange of currencies, which gives a forward currency contract. In addition, it is worth mentioning that a commonly used *Shariah*-compliant contract in Islamic banking is the profit rate swap according to which two parties agree to exchange periodic fixed and floating payments by multiplying a pre-agreed notional amount by the applicable fixed and floating rates agreed by the parties. The resulting amounts are then paid by the parties to one another. Such an exchange is done using a Murabaha contract to generate the fixed rate payments and a Reverse Murabaha or Tawarruq contract to generate the floating rate payments. Asset-liability management is then accessible to Islamic banks through the implementation of strategies where profit rate swaps are involved, among other *Shariah*-compliant instruments.

That said, derivative-like contracts are somehow replicas of conventional derivatives, while being *Shariah*-compliant. The discipline of financial engineering in conventional finance could add significant value to Islamic finance as well. Islamic finance would benefit from synergies with financial engineering, for example in the design of Islamic financial products and in risk management strategies.

5. Regulatory issues

Regulatory frameworks and capital adequacy rules are important parts of the financial institutions environment (Anginer and Demirgüç-Kunt, 2014; Maddaloni and Peydró, 2011). These are even more important in emerging markets (Grira and Labidi, 2016) where most of Islamic financial institutions evolve. That said, dual banking systems face

regulatory challenges for several important reasons. *First*, it is, by construction, not feasible to have a homogeneous set of standards that apply interchangeably to both banking systems, the Islamic and the conventional. Being conscious of this fact, the Islamic Financial Services Board (IFSB) issued standards and regulatory frameworks that apply to Islamic financial institutions[8]. These cover the financial safety nets[9], governance practices and regulatory compliance, as well as guidelines for an effective implementation of stress testing settings[10]. *Second*, regulating Islamic banking is very specific exercise in nature as it requires specialized resources in *Shariah* compliance as well as precise knowledge about the particular design of Islamic financial products and their implicitly embedded risks. Regulatory agencies would find it quite challenging to get staffed for the supervision of the Islamic banking system. *Third*, differences in regulatory requirements necessarily imply different barriers to doing business, hence giving an advantage to one system against the other as regulation costs would not be the same. Arbitrage opportunities would theoretically exist, with potential impacts on market shares[11], profitability and ultimately, viability of a system against the other. It is then important to account for the specificities of both banking systems while trying to reduce regulatory cost differences. *Finally*, information disclosure could be an issue that regulators need to monitor, specifically information released by conventional banks having Islamic banking windows. Since customers with Islamic faith choose their financial institutions in accordance to their beliefs, regulators should scrutinize the way financial products are presented to customers to prevent potential information asymmetries that could mislead them about the *Shariah* compliance of their choices.

[8] https://www.ifsb.org/preess_full.php?id=479&submit=more

[9] *As part of the financial safety net, deposit insurance is a mechanism that could contribute to mitigating moral hazard problem in the banking system. While most countries adopted deposit insurance schemes for conventional banking systems, Islamic banks are still without such a scheme. As insurance is not a Shariah-compliant concept, takaful could be considered as the alternative.*

[10] *Sharia non-compliance risk is assessed as per IFSB recommendation and is part of operational risk. Shariah non-compliance risk is the risk that arises from failure to comply with the Shariah rules and principles determined by the Shariah Board or the relevant body in the jurisdiction in which the Islamic financial institution operates. Failure to satisfy the essential elements of a contract renders the contract invalid, and hence the risk of Shariah non-compliance will arise. Nonetheless, some of the prohibitive elements in an Islamic contract may not be peculiar to Islamic banks. They are also sources of operational risk in conventional banks, such as fraud, deception and mistake.*

[11] *Individuals for whom beliefs matter wouldn't move, at least theoretically, from the Islamic banking system to the conventional one, while those for whom beliefs matter less could move if the Islamic banking system benefits from lower regulatory costs.*

From an Islamic fund management point of view, despite a high growth potential, the size of the Islamic mutual funds industry remains very small compared to its target population.[12] Islamic mutual funds represent only about 0.2% of the US$ 40.4 trillion mutual funds' assets managed globally. Islamic mutual funds remain also small in size in comparison to their conventional counterparts (according to IFSB (2018), in 2017, 69% of Islamic funds have average assets under management of less than USD 25 million, in contrast to average assets under management of USD 400 million for conventional funds). Islamic investment is also minimal compared to global sustainable investment (US$23 trillion in 2016 according to GSIA, 2016). In order to grow in size and to attract more capital from both Muslim and non-Muslim investors, the Islamic mutual funds industry could better benefit from the global growth of ethical and socially responsible investment by embracing socially responsible investment and sustainable development principles. Islamic investment and socially responsible investment share common objectives in creating a more equitable financing system and affecting positively the society. Yet, Desbrières, Erragragui, Peillex (2018) show that Islamic funds are characterized by social under-performance. Adopting a strategy focused solely on excluding illicit activities is indeed insufficient to promote social welfare and Islamic finance regulators and mutual funds' *Shariah* boards might consider adopting environmental, social and governance (ESG) considerations and promoting more transparency in social accountability to attract more international and institutional investors. The IFSB already issued guidance in that sense through a set of standards aiming at enhancing transparency and accountability in Islamic finance products broadly[13].

Finally, in relationship with Islamic risk management, the IFSB recently issued guidelines and standards in risk management for Islamic financial institutions. This is an important step toward the modernization of supervisory frameworks and risk management practices in the Islamic financial industry. That said, implementation remains a challenge because of the lack of resources specialized in Islamic risk management and also the lack of training on the topic. Further efforts should be invested

[12] *According to Pew Research Center, in 2015 there were 1.8 billion Muslims in the world representing roughly 24% of the global population.*
[13] https://www.ifsb.org/

by Islamic financial institutions in training, and at the same time, academic institutions should follow the pace by offering Islamic finance programs and professional development opportunities.

Another issue that relates to Islamic risk management is the availability and disclosure of the information about risk exposures. The upward trend in using derivative-like Islamic financial instruments, mostly traded over-the-counter (OTC), urges regulators to coordinate with market players so that to assure availability and accuracy of the information related to these contracts. Centralizing at the national level the information related to OTC markets for both systems, conventional and Islamic, is an option that could potentially address issues of market efficiency and information asymmetry.

6. Future research avenues

We discuss in this paper the current state of research in Islamic banking, Islamic fund management, and Islamic risk management and shed some light on regulatory challenging in dealing with dual banking systems. We believe that further efforts could be invested in designing more authentic Islamic financial products in order to move away from the approach of replicating or mimicking products of conventional finance. Financial engineering is a key competency in that regard because it provides the technical skills for product design, but also for Islamic risk management and Islamic fund management. Moreover, it feeds regulators with valuable competencies that would enhance the offer and improve responsiveness of Islamic financial institutions to their customers. Furthermore, as research in Islamic finance has initially started with a *Shariah* compliance spirit and reached now interesting growth levels in the Middle East, North Africa, and South East of Asia, we believe that further research work should be done on active management of risks in Islamic financial institutions and Islamic funds. We believe that closer coordination between Islamic regulatory bodies and conventional (national) regulators would contribute to increasing the integration between Islamic and conventional financial systems, all for the benefit of economic agents regardless of their individual beliefs. Finally, how Islamic regulatory bodies would deal with the emerging technological trends, namely fintech and smart contracts, remains an open question as Islamic financial institutions are relatively legging behind in these matters and that compliance cost would represent a competitive disadvantage against their conventional

peers. Future research on topics in the frontier of innovation and Islamic finance would contribute to the body of knowledge in this niche where beliefs and finance seem to be intertwined, at least for the next upcoming decades.

Credit author statement

Jocelyn Grira: Conceptualization, Methodology, Writing and Submitting

Chiraz Labidi: Conceptualization, Methodology, Writing and Editing

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