Islamic Banking and Finance: Recent Empirical Literature and Directions for Future Research

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Abstract. This paper examines the recent empirical literature in Islamic banking and finance, highlights the main findings and provides a guide for future research. Early studies focus on the efficiency, production technology and general performance features of Islamic versus conventional banks, whereas more recent work looks at profit and loss-sharing (PLS) behaviour, competition, risks as well as other dimensions such as small business lending and financial inclusion. Apart from key exceptions, the empirical literature suggests no major differences between Islamic and conventional banks in terms of their efficiency, competition and risk features (although small Islamic banks are found to be less risky than their conventional counterparts). There is some evidence that Islamic finance aids inclusion and financial sector development. Results from the empirical finance literature, dominated by studies that focus on the risk/return features of mutual funds, finds that Islamic funds perform as well, if not better, than conventional funds – there is little evidence that they perform worse than standard industry benchmarks. Some recent evidence, however, suggests that Islamic bond (*Sukuk*) issuance destroys value for shareholders.

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1. Introduction

The key principles underlying Islamic banking and finance – namely the prohibition of *Riba* (narrowly interpreted as interest) and adherence to other *Shariá* (Islamic law) requirements – are as ancient as religion itself, although it has only been since the 1960's that banks have offered Islamic financial services. These *Shariá* compliant services now sum-up to a global industry amounting to around $2 trillion in assets, of which 80% is accounted for by Islamic banks (or Islamic windows of conventional banks), 15% *Sukuk* (Islamic bonds), 4% Islamic mutual funds and 1% *Takaful* (Islamic insurance) (The Economist, 2014). According to the Islamic Financial Services Board (2013), Iran is the biggest Islamic banking market (accounting for around 40% of global Islamic banking assets) followed by Saudi Arabia (14%), Malaysia (10%) and the United Arab Emirates (UAE) and Kuwait (both with 9% shares). There are few countries that have solely Islamic banks – only Iran and Sudan – in the majority of Muslim countries Islamic banks compete head-on with conventional banks. For instance in places such as Saudi Arabia around 35% of banking sector assets are *Shariá* compliant, figures are lower for UAE (22%), Qatar (20%) and Malaysia (20%). While Islamic banking and financial assets comprise under 1% of total global financial assets (given Credit Suisse's (2013) estimates of world financial assets) it is a sector that has grown faster than conventional (Western) finance since the 2007/8 banking crisis, and this trend is expected to continue into the near future (The Economist, 2014). In addition to the growth in banking assets there is increasing competition between major financial centres to take the lead in *Sukuk* issuance and to develop a broader array of Islamic investment products (TheCityUk 2013). In the light of these developments it is timely to provide a review of the extant literature on Islamic banking and finance to highlight the main areas of interest and futures areas for further research.

2. A Brief History

From the earliest stages in Islamic history, Muslims were able to establish a system without interest for mobilizing resources to finance productive activities and consumer needs. The system worked quite effectively during the heyday of Islamic civilization and for centuries thereafter. According to Goitein (1971) partnership and

profit and loss (PLS) sharing and non-interest based borrowing and lending formed the basis of commerce and industry in twelfth and thirteenth centuries in the Mediterranean region. However, the Protestant Reformation in the Western world provided an impetus to intellectual growth (Hillebrand, 2009). This eventually led to the change in the centre of economic gravity to the West and Western financial institutions (especially banks) became dominant and the Islamic tradition remained dormant. Over the last 50 years or so, however, there has been a revival of interest in developing a modern version of the historic Islamic financial system in the wake of Muslims' desire to stay clear of interest and practice financial transactions consistent with *Shariá* principles.

When commercial banking emerged after the industrial revolution, Muslim scholars expressed reservations with the Western model of financial intermediation due to its reliance on interest and they called for the development of alternative mechanisms to perform a financial intermediation function in Muslim societies (Iqbal and Molyneux, 2005, Molyneux and Iqbal, 2005). Muslims to a significant extent refrained from dealing with commercial banks. However, the growing needs of traders, industrialists and other entrepreneurs in rapidly monetizing economies were pressing and as a consequence Muslim economists and bankers took up the challenge of developing alternative models of financial intermediation. In the early 19th century most of the Muslim world was under colonial rule. When many of these countries gained their independence after World War II, practical experiments in interest-free financing started at a modest scale and gradually expanded in scope.

While credit societies and cooperatives working on an interest-free basis existed in several Muslim countries even during the colonial period, the semblance of banking institutions started emerging in the early 1960s. A pioneering experiment of putting Islamic principles governing financial dealings into practice was conducted in Mit-Ghamr, Egypt, from 1963-1967. Modelled on the German saving banks (Sparkassen), the Mit-Gamar initiative mobilized small savings from the rural sector largely through savings accounts. No interest was paid to account holders. However, as an incentive they were eligible for small short-term interest-free loans for productive purposes. Account holders were allowed to withdraw their deposits on demand. In addition, investment accounts on the basis of profit and loss sharing were

also introduced. The funds so mobilized were invested on the basis of PLS with entrepreneurs.

The first interest-free institution with “bank” in its name, Nasser Social Bank, was established in Egypt in 1971. This was the first time a government in a Muslim country provided public support for incorporating an interest-free institution. Even though the objectives of the Nasser Social Bank were mainly social, such as providing interest-free loans to the poor and needy; scholarships to students; and micro-credits to small projects on a PLS basis; the involvement of a public authority in interest-free banking sent important signals to Muslim businessmen having surplus funds. A group of such businessmen established the Dubai Islamic Bank in 1975. This was the first Islamic Bank established on private initiative. However, official support was crucial with the governments of UAE and Kuwait contributing respectively 20% and 10% of the capital. (Iqbal and Molyneux, 2005)

Probably one of the most important developments in the history of Islamic banking took place with the establishment of the Islamic Development Bank (IDB) in 1975. The IDB was established as an international financial institution by representatives of member countries of the Organization of the Islamic Conference (OIC) (in 1975 there were 23 members increasing to 57 by 2014). The IDBs main objective is to promote economic and social development in the Muslim world in accordance with the principles of *Shariá* and it has been a major financier and promoter of an array of Islamic banking and finance initiatives since its formation.

Between 1975 and 1990 the Islamic financial industry developed into an alternative model of financial intermediation. The period was marked by establishment of a substantial number of Islamic financial institutions in the private sector. In addition, governments in three countries, namely, Pakistan, Iran and Sudan, expressed the desire to gradually eliminate interest from their entire economies and substitute it with banking systems based entirely on Islamic principles - by 2014 Iran and Sudan had (virtually) achieved these objectives. Even more important was the fact that several multinational banks started offering Islamic financial products. This was a clear recognition of the viability of the new model and its acceptance by international players. The International Monetary Fund and the World Bank also

recognized Islamic financial products as alternative means of financial intermediation (Sundararajan and Errico 2002; World Bank, 2013). During the 1990s, while growth in the Islamic banking industry continued, attention was also given to the development of non-bank financial institutions. Islamic financial institutions other than banks started coming on the scene in increasing numbers. These included insurance companies and investment funds although (as noted earlier) the bulk of Islamic financial assets (80%) are in banking business.

Initiatives for the establishment of some of infrastructure institutions supporting the Islamic financial industry also started in the 1990s. In the beginning, Islamic banking institutions had to work within the institutional framework that supported conventional banking and they were at somewhat of a comparative disadvantage because the institutional framework was not specifically geared to Islamic needs. While still in its infancy, a beginning was made towards constructing a network of supporting institutions for the Islamic financial industry.

Nowadays Islamic banking and finance manifests itself in five ways:

1. Banks and financial institutions operate in countries where the promotion of an Islamic financial system receives active government support;
2. Islamic banks and financial institutions operate in the private corporate sector competing with conventional (Western) institutions;
3. Islamic banking is practiced by conventional commercial banks (via Islamic windows), traditional Islamic banks as well as non-bank financial institutions;
4. Multinational financial institutions (like the Islamic Development Bank in Jeddah) operate on *Shariá* principles;
5. Islamic capital market instruments (mutual funds, *Sukuk*), and insurance *(Takaful)* are becoming more important, for instance, *Sukuk* issuance partly funded London's Olympic Village and 'Shard' building.

3. Principles of Islamic Banking & Finance

Islamic banking and finance is based on *Shariá* principles which forbid payment or receipt of *Riba* generally misconstrued as interest (Pryor, 2007).[i] The lending facility encouraged in the medieval era of Islamic society is that of gratuitous loans termed as *Qard Al-Hasan*. It is interesting to note that *Shariá* recognizes the time value of money, since according to Islamic rules the price of a good to be sold on

a deferred payment basis can be different from its current value.[ii] While *Shariá* recognizes excessive payments in business transactions, it prohibits the same on lending activities (Obaidullah, 2005). Islamic finance has evolved based on the precedence of transactions conducted specifically in the medieval era and recorded under *Fiqh al-Muamalat*. These can mainly be categorized as: 1) Debt-based financing: where the financier purchases or has the underlying assets constructed or purchased and then this is sold to the client at a mark-up. The sale would be on a deferred-payment basis with one or several instalments. 2) Lease-based financing: the financier purchases or has the underlying assets constructed or purchased and then rents it to the client. At the end of the rental period (or proportionate to the rentals) ownership would be transferred wholly or partially to the client. 3) Profit and Loss Sharing (PLS) financing: the financier is the partner of the client and the realized profit or loss would be shared according to pre-agreed proportions (Khan and Ahmed, 2001). The first two Islamic finance methods are collectively known as Non-Profit and Loss Sharing "Non-PLS" contracts.

Besides restrictions on *Riba*, *Shariá* has various other prohibitions which have to be taken into account. For instance, according to *Shariá* all contracts should be free of "*Gharar*", which is narrowly interpreted as excessive uncertainty.[iii] Hence as noted earlier, Islamic financial institutions face some restrictions on application of financial derivatives and other types of contracts (including various forms of insurance policies). In addition, Islamic financial firms are not allowed to undertake business prohibited under Islamic law (known as *Haraam*) such as investing in companies involved with alcohol, gambling, non-Islamic financial services, pornography, tobacco or weapons. However, as many large firms receive a modest proportion of income from such prohibited activities (for instance, hotel chains and alcohol sales), modern *Shariá* scholars tend to allow investment in companies with tolerable proportions of revenues from prohibited activities under the condition of *Haraam purifcation*. This requires investors to donate equivalent proportion of their distributions from such companies to charities to purify their earnings from prohibited activities (Hopener et al 2011). Islamic financial institutions all have *Shariá* supervisory boards composed of executive management as well as Islamic scholars whose role is to ensure that the firm's activities are undertaken in a *Shariá* compliant manner.

It has been suggested that because of the prohibition of interest and the PLS nature of Islamic banking and finance contracts this can make Islamic financing agreements more complex and costly. Generally, in debt-based or lease-based finance, such as *Murabaha*, Islamic banks arrange for the goods/projects to be purchased and then sell or rent them (at a mark-up) to clients. For purchase/implementation of the goods/projects, Islamic banks normally appoint the client as their agent. Such a framework is somewhat complicated as compared to conventional loan contracts. Sundarajan and Errico (2002) note the specific risks attached to various Non-PLS methods, such as *Salam* and *Ijara*. In the former, Islamic banks are exposed to both credit and commodity price risks; in the latter, unlike conventional lease contracts, Islamic banks cannot transfer ownership and therefore have to bear all the risks until the end of the lease period.

Another area of debate relates to the treatment of default penalties. Some jurisdictions rule that such penalties are not authorized by *Shariá*, so banks make use of rebates instead (Khan and Ahmed, 2001). Here the mark-up on the finance arrangement implicitly covers the return to the banks as well as a default penalty component. If the client repays the loan in a timely manner then they will receive the rebate. While default interest payments are typically calculated over the delayed period in conventional banking, some Islamic banks collect the delayed penalty over the whole financing period. In addition, Islamic banks can also face restrictions regarding the use of derivatives as well as different types of collateral, for instance, they are not authorized to use interest-based assets, like money market instruments or bonds, for security.

In addition to lending, conventional banks also allocate a part of their funds to investments. Such investments normally include purchase of bonds (as well as instruments with shorter maturities) of different types that have risk/return features that help manage portfolio risk. Islamic banks have limited options for such investments since they are not authorized to invest in interest bearing instruments. Alternatively they can invest in Islamic bonds, known as *Sukuk*. Although (like in short-term Islamic money markets) the asset class still remains relatively underdeveloped, limitations on Islamic bank investment opportunities has been weakened over time due to *Haraam purifcation* as well as the expansion of alternative Islamic financing instruments.

4. Performance of Islamic versus Conventional Banks

Table 1 illustrates recent empirical literature comparing the performance of Islamic and conventional banks. Most studies use parametric (El-Gamal and Inanoglu, 2002: Majid et al, 2003; Mohamad et al. 2008) or non-parametric frontier approaches (Yudistra, 2004; Bader et al. 2008; Johnes et al 2014) to model cost and profit efficiency (as well as productivity). As the Table illustrates, early studies focus on single countries but more recent literature has been cross-country - Beck, Demirgüç-Kunt and Merrouche (2013) for instance do estimations over 141 countries. Despite the ongoing interest in efficiency comparisons, no strong consensus emerges from this literature, although a (small) majority of studies find no major difference between Islamic and conventional banks in terms of cost and profit efficiency. Fewer studies focus on the determinants of bank profitability (Hassan and Bashir 2003, Rashwan, 2010) and here there is some evidence that better capitalised and loaned-out Islamic banks are more profitable.

<Table 1 Performance of Islamic versus Conventional Banks – Recent Empirical Evidence HERE>

5. Risks in Islamic Banking?

Islamic banking is characterized by features that appear on the one hand to reduce risk: the religious beliefs of clients may induce greater loyalty and discourage default (it may also reduce deposit withdrawal risk). On the other hand it could increase risk due to such factors as: the complexity of Islamic loan contracts, limited default penalties and moral hazard incentives caused by PLS contracts. In terms of insolvency risk, the special relationship with depositors could provide Islamic banks with greater capacity to bear losses yet at the same time, operational limitations on investment and risk management activities could make them less stable than their conventional counterparts. Moreover, while interest is forbidden in Islamic banking, those institutions that compete with conventional banks may be forced to mirror their pricing behaviour and as such may be subject to (indirect) interest rate risk.

After the global financial crisis in 2007/8 there has been increased interest in risk in banking in general as well as in the Islamic world. Table 2 illustrates the most recent literature.

<Table 2 Risk and Islamic banking HERE>

Reviewing the literature in Table 2 early studies typically use regression approaches to try and explain various types of risk and to examine differences between conventional and Islamic banks. Čihák and Hesse (2010) and Abedifar et al (2013) examine insolvency risk (using the Z-score measure) as well as other risks and typically find that small Islamic banks have lower default risk compared with small conventional banks. Čihák and Hesse (2010) also find that large Islamic banks are less stable than conventional banks whereas Abedifar et al (2013) and Beck et al (2013) find no such differences. The most recent studies have tended to investigate survivorship of the two types of banks, again cross country, using duration models. Pappas et al (2014), for instance, use duration models and finds that Islamic banks have significantly lower failure rates compared to similar conventional banks. Baele et al (2014) examine 150,000 small business loans (from the Central Bank of Pakistan's Credit Register) over 2006-2008 to examine default rates. They find that the default rate on small business Islamic loans is less than half that of conventional loans. The study also shows that small business borrowers that take on loans from both conventional and Islamic banks are more likely to default on the former – this they put down to the moral pressures linked to religious beliefs. Saeed and Izzeldin (2014) take a different slant looking at the link between profit efficiency (derived from parametric stochastic frontier estimates) and distance to default (derived from a Merton model) and show that for Islamic banks defaults rates are inversely related to profit efficiency whereas there is a positive relationship for their conventional counterparts. Mollah et al (2014) investigate a variety of determinants of Islamic bank risk-taking and they find corporate governance and financial disclosure issues appear to have a major influence.

6. Other Topical Banking Issues

i) PLS Versus non-PLS Types of Finance

As Abedifar et al (2013) note, Islamic banks often tend to deviate from PLS financing principles and operate similarly to conventional banks. Potential deposit withdrawal risk may persuade management to vary from PLS principles by paying competitive returns to investment account holders if they are competing with conventional banks. For instance, Chong and Liu (2009) use Malaysian data to illustrate that investment deposit rates of Islamic banks are closely linked to those of their conventional counterparts. Also when lending Islamic banks are also likely to apply non-PLS principles due to the risks and complexities associated with the PLS method. For instance, under PLS financing, Islamic banks need to determine the profit or loss sharing ratio for each project which can be complicated due to difficulties in quantifying the characteristics of clients and the proposed business opportunity. Revenue is not guaranteed and since they cannot collect collateral from clients, they need to put more effort into selection and monitoring so as to ensure that informational rents are not extracted by borrowers. Hence, for short-term financing, it may not always be viable for Islamic banks to use the PLS method. Moreover, under the *Mudarabah* contract, Islamic banks have limited means to control and intervene in the management of a project.

There is evidence to suggest that Islamic banks typically do not depend on PLS contracts to undertake their financing activities. Aggarwal and Yousef (2000) show that Islamic banks mainly use Non-PLS instruments to avoid moral hazard problem associated with PLS financing. Chong and Liu (2009) also finds that in Malaysia, only 0.5% of Islamic bank finance is based on PLS principles and Baele et al (2014) find that the bulk of Islamic financing in Pakistan is not via PLS. According to the Bank Indonesia (2009) PLS modes of finance account for 35.7% in the financing of Islamic banks operating in the country by the end of 2008, and this they claim to be the highest proportion in any Islamic banking system.

ii) Competition

A handful of studies, noticeably Turk Ariss (2010) and Weill (2011), have investigated competition in various countries where Islamic and conventional operate together. The former study uses a variety of indicators – concentration ratios, Panzar-Rosse H-statistic and Lerner index – to gauge market structure and competition

issues. The main finding from Turk Ariss (2010) is that Islamic banks are less competitive than conventional operators although this finding conflicts with Weill (2011) who shows that Islamic banks have lower market power. An interesting study by Aysan et al (2014) uses Central Bank of Turkey deposit data to investigate depositor responsiveness to interest changes. Surprisingly, Islamic depositors seem to respond more to deposit rate changes compared to conventional bank depositors – this provides (perhaps) some indirect evidence that Islamic banks on the deposit-side are more competitive.

iii) Small Business Lending and Other Issues

Other areas covered in the empirical banking literature span a variety of issues. Ongena and Şendeniz-Yüncü (2011) and Shaban et al (2014) analyze the characteristics of Islamic bank business borrowers, concluding that they are dominated by relatively small and young firms that have multiple bank relationships. Islamic banks have a preponderance of such borrowers and they generate relatively high margins. Other studies cover a range of disparate themes ranging from the diffusion of Islamic banking (Imam and Kpodar, 2010) to how *Shariá* Boards impact bank performance (Mallin et al, 2014) and the link between provisioning and shareholder value creation Elnahass et al (2014). Gheeraert (2014) analyses a sample of 55 countries including 20 Muslim countries during the 2000-2005 period and claims that expansion of Islamic banking fosters banking sector development. Using a similar sample, Gheeraert and Weill (2014) interestingly show a non-linear relationship between Islamic banking development and macroeconomic efficiency - Islamic banking aids macroeconomic efficiency up to a point and then restricts it thereafter. Abedifar et al. (2014) explore whether the presence of Islamic commercial banks alongside their conventional counterparts can promote the development of the overall banking sector and economic welfare. Using a sample of 22 Muslim countries with a dual-banking system between 1999 and 2009 they find that the market share of Islamic banks is positively linked to the development of financial intermediation and economic growth, but negatively correlated with income inequality and poverty. They show that the extent and modality of the relationships depends considerably on the institutional environment within which a dual-banking system operates. A summary of the areas discussed in this section are summarised in table 3.

<Table 3 Other Topical Islamic Banking Issues HERE>

7. Islamic Finance

So far we have discussed the literature that looks at Islamic banking so in this section we outline recent developments in the study of Islamic finance – typically in capital markets areas. The empirical literature is dominated by work that compares the risk and return features of Islamic mutual funds with various benchmarks including conventional and Islamic market indexes as well as portfolios of conventional bonds. The main difference between Islamic funds and their conventional counterparts is that managers have a smaller universe of companies to invest in as they are subject to screening out businesses that are not *Shariá* compliant – this includes (religious) screening out of companies that operate in areas prohibited under Islamic law and screening out firms that cannot achieve certain financial criteria (for instance, exceeding maximum interest payments on debt deemed permissible). All in all, Islamic fund managers have a more limited investment choice.[iv] Recent empirical studies, such as Elfakhani et al (2005), Hayat (2006), Abderrezak (2008), Haddad et al (2009) and Hoepner (2011) find no difference in performance of Islamic equity funds with other conventional funds or index benchmarks. Others, such as Ferdian and Dewi (2007) and Mansor and Bhatti (2011) even find that Islamic funds perform better. There is little evidence that Islamic funds perform worse - Hayatt and Kraeussl (2011) being the exception. A couple of studies have combined efficiency analysis (that tends to dominate the empirical Islamic banking literature) with analysis of fund returns (Saad et al, 2010; and Abdelsalama et al (2014). Saad et al (2010) find that some Islamic funds are more efficient than conventional counterparts and Abdelsalama et al (2014) show that the average socially responsible investment (SRI) fund is more efficient than the average Islamic fund.

A more recent trend has been to examine features of the Islamic bond – *Sukuk* – market. Cakir and Raei (2007) show that *Sukuk* returns are not highly correlated with conventional bond returns and therefore present portfolio diversification opportunities (although Derigs and Marzbank, 2009 find no such potential benefits). Both Godlewski et al (2011) and Alam et al (2013) use event study approaches to

examine investor reaction to *Sukuk* issuance – they both find evidence of negative market reaction suggesting that investors do not view such activities in a positive light. Finally, Bialkowski et al (2012) also use an event study approach to look at the 'Ramadan effect' – they find that stock returns are higher and less volatile than during the rest of the year. They say, 'Ramadan positively affects investor psychology, as it promotes feelings of solidarity and social identity among Muslims world-wide, leading to optimistic beliefs that extend to investment decisions'(p.835). Table 4 provides a summary of the recent empirical finance literature.

<Table 4 Empirical Evidence from Islamic Finance HERE>

8. Conclusion and Future Research

An extensive empirical literature has emerged over the last decade or so investigating Islamic banking and financial issues. The main finding from this body of works is that Islamic banks are at least as efficient and (particularly for smaller banks) have lower default / insolvency risk than their conventional counterparts. Islamic banks typically focus more on higher margin small business borrowers who are less likely to default. Evidence on market power issues is mixed although there is some evidence that Islamic banks can be more competitive than their conventional counterparts. Other (albeit somewhat limited evidence) suggest that the spread of Islamic banking can aid financial inclusion and economic development. Results from the empirical finance literature, dominated by studies that focus on the risk/return features of mutual funds, finds that Islamic funds generally perform the same or better than conventional funds – there is little evidence that they perform worse than standard industry benchmarks. However, there is some evidence that *Sukuk* issuance destroys value for shareholders.

Nowadays a broader array of issues are being analysed, including the link between Islamic banking and financial and economic development, the diffusion of Islamic banking, the role of *Shariá* Supervisory Boards and governance issues, the impact of religious and financial screening on fund performance, and comparisons of *Shariá* screening with other types of investment filtering – like those for socially

responsible or environment friendly investments. Much of the governance work is in its infancy, as is the analysis of *Sukuk* and related instruments. In the banking area there still needs to be work done on examining systemic risks and seeing how this links to Islamic and conventional banking. Also, (as in the conventional empirical banking literature) more work is needed on the features and links between liquidity and market funding risks. There is room for more work to be done on pricing too-big-to fail and other government safety net subsidies in Islamic banking systems, as well as (hypothetical) stress testing of banks in Muslim countries. Can one identify systemically important financial institutions (SIFIs) and measure the risks they pose to the countries and regions in which they operate? Also, as many Islamic institutions are based in the Gulf Cooperation Council (GCC) countries, and as their economies are mainly driven by energy prices, it would be interesting to investigate to what extent such factors influence bank performance and risk? Broader questions should focus on linking financial and social inclusion in the Islamic world and see how this is related to notions of poverty, equality and economic development. Is there a link between health and finance in the Islamic world? These and many more questions pertinent to both the conventional and Islamic banking and financial sectors are worthy (in our view at least) of future academic investigation.

Endnotes

[i] This misunderstanding ensues from a literal Arabic translation of the word *Riba* implying an excess or an addition over the amount loaned. Ebrahim et al. (2014a) rationalize this injunction as deterring the employment of financial facilities with endemic agency costs of debt as they lead to expropriation of the assets of either the lender (in case of risk shifting) or that of the borrower (in case of underinvestment). In the context of the recent subprime crisis, *Riba* can be construed as "toxic" debt that can infect institutions thus impinging on both the real and financial sectors of the economy

[ii] This legality or permissibility is deduced from the precedence of Prophet Muhammad and his companions. It is also rationalized by religious scholars as emanating from the Qur'ānic verse (2: 275): "*God has permitted trade* (implying credit sales) *and forbidden Riba* (implying financial facilities with embedded agency issues). The ramification of this precedence has not been understood from a financial economics perspective until recently. This is explicated by Sen (1998, p. 435) as follows: "*when financial markets are imperfect* (as in the medieval era of the Prophet and his companions), *a seller can find it optimal to offer a menu of deferred payment plans*."

[iii] From a financial economics perspective "*Gharar*" can be construed as the following. One, it involves market manipulation ensuing from asymmetric information (Thomas, 1995). This definition is consistent with the views of Greenbaum and Thakor (1987) and has credence in the light of the recent market manipulating scandals such as LIBOR fixing, Gold price fixing etc. (http://www.ft.com/indepth/libor-scandal,

http://online.wsj.com/news/articles/SB10001424127887324077704578358381575462340). Two, it involves "trading in risk" (El-Gamal, 2009). This view is consistent with that of Claessens et al. (2012).

[iv] *Shariá* screening has been found to tilt a portfolio towards 'growth' stocks with the exclusion of value stocks. This leads to a style bias impacting on the long term performance of the portfolio (Ebrahim et al, 2014b).

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Table 1 Performance of Islamic versus Conventional Banks – Recent Empirical Evidence

Authors	Country(ies) of Study	Period	Data Type	Research Focus	Methodology	Main Finding
Bashir (1999)	Sudan	1979-1993	Yearly bank-level accounting data	Asset size and bank performance	Regression - OLS	Larger banks are more profitable yet have higher leverage. Analysis is based on only two Islamic banks.
Samad (1999)	Malaysia	1992-1996	Yearly bank-level accounting data	Cost efficiency	Descriptive statistics and ANOVA	Islamic banks are more efficient than their conventional counterparts.
El-Gamal and Inanoglu (2002)	Turkey	1990-2000	Yearly bank level accounting data	Production technology	Stochastic Frontier Analysis	Islamic banks have a similar production technology to conventional commercial banks.
Majid et al (2003)	Malaysia	1993-2000	Yearly bank level accounting data	Cost efficiency	Stochastic Frontier Analysis	No statistically significant difference in the level of efficiency between Islamic and conventional banks and no evidence to suggest that ownership influences cost efficiency.
Hassan and Bashir (2003)	Islamic banks operating in 21 countries	1994-2001	Yearly bank level accounting data	Determinants of bank profitability (ROA, ROE, NIM)	Regression - GLS	Controlling for macroeconomic environment, financial market structure, and taxation, the results indicate that high capital and loan-to-asset ratios lead to higher profitability (as does favorable macroeconomic conditions).
Yudistra (2004)	Islamic banks operating in 12countries	1997-2000	Yearly bank level accounting data	Technical and scale efficiency	Data Envelopment Analysis (DEA) and OLS regression	Islamic bank inefficiencies appear relatively low (around 10%) compared with those for conventional banks derived from other studies. Small to medium-sized Islamic banks exhibit diseconomies of scale. Islamic banks in the Middle East are less efficient than those operating outside the region.
Al-Jarrah and Molyneux (2005)	Bahrain, Egypt, Jordan and Saudi Arabia	1992-2000	Yearly bank level accounting data	Cost and profit efficiency	Stochastic Frontier Analysis	Islamic banks are found to be the most cost and profit efficient banks compared to conventional commercial and investment banks.
Mohamad et al. (2008)	21 Organization of Islamic Conference (OIC) countries	1990-2005	Yearly bank level accounting data	Cost and profit efficiency	Stochastic Frontier Analysis	No significant difference between cost and profit efficiency of conventional versus Islamic banks, irrespective of size, age and geographical location Islamic banks based in the Middle East and Turkey are more cost efficient than their African counterparts.
Bader et al. (2008)	21 OIC countries	1995-2005	Yearly bank level accounting data	Cost, revenue and profit efficiency	Data Envelopment Analysis	No significant difference between cost, revenue and profit efficiency of conventional versus Islamic banks. Note this study uses the same sample as Mohamed et al (2008).
Abdul-Majid et al. (2010)	10 countries	1996-2002	Yearly bank level accounting data	Returns to scale and efficiency	Parametric output distance function	Islamic banks are found to have moderately higher returns to scale than conventional banks but appear less efficient due to *Sharia* compliance. Country effects have a significant impact on efficiency differences.
Johnes et al (2009)	GCC – 6countries	2004-2007	Yearly bank level accounting data	Efficiency and productivity	DEA Malmquist productivity Ratio Analysis	Islamic banks have (significantly) lower efficiency than conventional banks. Modest productivity growth over the study period.
Rashwan (2010)	15 countries	2007-2009	Bank level data	Profitability and efficiency over the banking crisis	Multivariate analysis of variance (MANOVA)	Islamic banks are more profitable and efficient than traditional banks pre-crisis but the opposite is the case post-crisis.
Abdul-Majid et al. (2011a,b)	Malaysia	1996-2002	Bank level data	Efficiency and productivity	Stochastic Frontier Analysis	Islamic banks and Islamic window banks are less cost efficient than their conventional counterparts

Beck, Demirgüç-Kunt and Merrouche (2013)	141 countries (including 22 OIC member countries)	1995 - 2007	Yearly bank-level accounting data	Efficiency, asset quality, stability and business orientation	Regression – OLS Fixed effects, Robust	Few significant differences are found between Islamic and conventional banks.
Johnes et al (2014)	Countries where at least 60% of the population is Muslim – 18 countries.	2004-2009	Yearly bank-level accounting data	Efficiency	DEA, meta-frontier, Two-stage approach examining determinants of efficiency	Islamic banks are less efficient, in general, than their conventional counterparts

Source: Adapted from Abedifar et al (2013) Table 1 and authors updates

Table 2 Risk and Islamic Banking

Authors	Country(ies) of Study	Period	Data Type	Research Focus	Methodology	Main Finding
Čihák and Hesse (2010)	20 OIC member countries	1993-2004	Yearly bank-level accounting data	Insolvency risk	Regression – OLS and Robust	Small Islamic banks are more stable than small conventional banks; however, large Islamic banks are less stable than their conventional counter-parts.
Hasan and Dridi (2010)	8 countries	2007-2009	Yearly bank-level accounting data	Factors influencing performance, growth and ratings over crisis period	Regression – OLS	The credit and asset growth of Islamic banks was more than that of conventional banks from 2008 to 2009 'contributing to financial and economic stability', although profits of Islamic banks fell more than conventional banks in 2009 due to limitations in their risk management practices
Abedifar et al (2013)	24 OIC member countries	1999-2009	Yearly bank-level accounting data	Credit risk, insolvency risk, interest rate risk and possibility of extracting religious rent	Regression – random effects	Islamic banks that are small, leveraged and based in countries with predominantly Muslim populations have lower credit risk than conventional banks. Small Islamic banks appear more stable than similar sized conventional banks. During the recent crisis, however, large Islamic banks exhibit lower stability than large conventional banks. Implicit interest income and expense, as well as credit risk of Islamic banks are less responsive to domestic interest rates. Islamic banks do not seem to charge special rents to their clients for offering *Shariá* compliant financial products.
Beck et al (2013)	141 countries (including 22 OIC member countries)	1995 - 2007	Yearly bank-level accounting data	Efficiency, asset quality, stability and business orientation	Regression – OLS Fixed effects, Robust	Few significant differences are found between Islamic and conventional banks.
Pappas et al (2014)	20 countries	1995-2010	Yearly bank-level accounting data	Survival rates of Islamic and conventional banks	Duration models, hazard rates	Islamic banks have a significantly lower risk of failure both unconditionally and conditionally on time-varying bank characteristics, market structure and macro-economic conditions.
Baele et al (2014)	Pakistan	2006:04 – 2008:12	150,000 Monthly business loans	Loan default rate	Hazard function	Default rate of Islamic loans is less than half the default rate of conventional loans. Islamic loans are less likely to default during Ramadan
Saeed and Izzeldin (2014)	Bahrain, Bangladesh, Indonesia, Kuwait, Pakistan, Qatar, Saudi Arabia and UAE	2002-2010	Yearly bank-level accounting data	Profit efficiency and default risk	Stochastic Frontier Analysis and distance to default (Merton) model	Profit efficiency is inversely related to default risk for Islamic banks, whereas for conventional banks it is positively linked
Mollah et al (2014)	Bahrain, Bangladesh, Malaysia, Pakistan, Saudi Arabia, The United Arab Emirates, and The United Kingdom	2006-2009	Yearly bank-level accounting data	Links between risk exposure, governance indicators and bank performance/value	PLS and GMM	Corporate governance (CGI) and financial disclosure (FDTI) indices have emerged as the key driving forces for risk-taking for Islamic banks. *Shariá* boards do not inhibit risk-taking

Source: Adapted from Abedifar et al (2013) Table 1 and authors updates

Table 3 Other Islamic Banking Issues

Authors	Country(ies) of Study	Period	Data Type	Research Focus	Methodology	Main Finding
Chong and Liu (2009)	Malaysia	1995:04 – 2004:04	Monthly interest rates (rates of return for Islamic banks)	Causality relationship between Islamic banks deposits rates and interest rates in conventional banking.	Granger causality test	Rates of return on the investment deposits of Islamic banks are closely related to rates on conventional banks' deposits.
Imam and Kpodar (2010)	117 countries	1992-2006	Country level data	Determinants of the diffusion of Islamic banking	Regression - Tobit	Probability for Islamic banking to develop in a country rises with the share of the Muslim population, income per capita, and whether the country is a net exporter of oil. Increasing interest rates limit the diffusion of Islamic banking.
Turk Ariss (2010)	13 countries	2000-2006	58 Islamic and 192 conventional banks. Yearly bank accounting data from Bankscope	Competitive conditions in banking markets	Measures of concentration, Panzar Rosse H-statistic and Lerner index (market power)	Islamic banks are less competitive compared to conventional banks
Ongena and Şendeniz-Yüncü (2011)	Turkey	2008	Bank-firm relationships	Firm bank choice	Multinomial logit	Islamic banks mainly have corporate clients that are young, transparent, industry-focused, and have multiple-bank relationships.
Weill (2011)	17 OIC member countries	2001 – 2007	Yearly bank-level accounting data	Market power	Regression – random effects GLS	Islamic banks have lower market power than conventional banks.
Aysan et al (2014)	Turkey	2004:03-2012:12	Deposit data	Behavioral aspects of Islamic bank depositors in a dual banking system	Panel vector autoregression (panel-VAR)	Conventional bank depositors are relatively less sensitive to interest rate changes compared to Islamic bank depositors since only the largest depositor groups are found to be significantly responsive to interest rate shocks
Hassan et al (2014)	55 OIC countries	1990-2011	Financial inclusion indicators (e.g. ATM usage) and GDP growth measures	Examines the relationship between financial inclusion and economic development in Islamic economies	Panel VAR, forecast error variance decompositions, Panel Granger causality tests	Financial inclusion has a positive link to economic development and the relationship varies across regions.
Shaban, et al (2014)	Indonesia	2002-2010	Data on small business lending and other financial data on 107 conventional banks and 7 Islamic banks. Data from the Central Bank of Indonesia	Determinants of small business lending	Dynamic GMM and Granger causality tests	Small and more profitable banks are more likely to focus on small business lending. Islamic banks also have a higher proportion of small business lending on their books from which they earn relatively high margins

Mallin et al (2014)	13 countries - Bahrain, Bangladesh, Indonesia, Jordan, Kuwait, Malaysia, Pakistan, Qatar, Saudi Arabia, Sudan, Syria, UAE and UK.	2010-2011	Constructs a corporate social responsibility (CSR) disclosure index	Examines the relationship between Islamic bank CSR disclosure and the features of the *Shariá* Supervisory Board on bank performance	OLS and 3SLS	Positive link between *CSR* disclosure and performance. There is also a positive and highly significant link between the *Shariá* supervisory board (*SSB)* size and *CSR* disclosure index.
Elnahass et al (2014)	Middle East North Africa (MENA) countries	2006-2011	74 Conventional and 32 Islamic banks	Looks at the link between loan loss provisioning (LLP) and value creation	Fixed effects regression	LLP has positive value relevance to investors in both banking sectors. Investors in Islamic banks price the discretionary component relatively lower than their conventional counterparts
Gheeraert (2014)	55 countries	2000-2005	Aggregate data on banking and financial sector development. Data from the World bank's Financial structure database	Examines the link between Islamic banking and aggregate banking sector development	Regression	Islamic banking sector developments aids overall banking sector development
Gheeraert and Weill (2014)	70 countries	2000-2005	Yearly bank-level accounting data and macro data	Examines Islamic banking development and macroeconomic efficiency	Stochastic Frontier Analysis	There is a non-linear relationship between Islamic banking development and macroeconomic efficiency. Islamic banking aids macroeconomic efficiency up to a point and then restricts it thereafter.
Abedifar et al. (2014)	22 Countries	1999-2009	Bank-level obtained from the Bankscope and Country-level data collected from the World Bank database.	Finance-growth nexus	Regression	Presence of Islamic banks is positively linked to the banking sector development and economic growth, but negatively is associated with income inequality and poverty. The extent and modality of the relationships depend considerably on the institutional environment within which a dual-banking system operates.

Table 4 Empirical Evidence from Islamic Finance

Authors	Sample	Period	Data Type	Research Focus	Methodology	Main Finding
Ismail and Shakrani (2003)	12 Islamic Malaysian mutual funds	May 1999-July 2001	Monthly mutual fund returns and market benchmark	Examining the link between market risk and fund returns	CAPM and cross-sectional regression	Beta explained most of the variation in Islamic fund returns
Elfakhani et al (2005)	46 Islamic mutual funds	January 1, 1997, and ends on August 31, 2002	Mutual fund monthly returns from Failaka International and Standard & Poor's	Comparing the performance of Islamic mutual funds with conventional equity benchmarks also at market timing and selectivity issues	Sharpe, Treynor,, Jensen ratios plus the Mazury (TM) model	There is no statistically significant risk-adjusted abnormal reward or penalty associated with investing in Sharia compliant mutual funds
Hayat (2006)	59 (Malaysian and International)	August 2001-August 2006	Fund weekly returns from Bloomberg	Comparing return / risk performance against conventional and Islamic benchmarks	Sharpe, CAPM Jensen Alpha, Timing and Mazury (TM) model	Islamic fund do not significantly under or outperform their Islamic as well as conventional benchmarks under normal market conditions. During the bear market of 2002 Islamic funds did however significantly outperform the Islamic and conventional market
Abdullah et al (2007)	65 Malaysian funds, 14 of which are Islamic funds	January 1992 through December 2001.	Mutual fund monthly returns from	Comparing the performance of Islamic mutual funds with conventional equity benchmarks	Sharpe, Jensen Alpha, Timing and selectivity ability	Islamic funds performed better than the conventional funds during bearish economic trends while, conventional funds showed better performance than Islamic funds during bullish economic conditions
Ferdian and Dewi (2007)	20 Malaysia 5 Indonesian Islamic Funds	1 October 2005-30 April 2007	Monthly returns obtained from Bloomberg	Comparing returns with the market and Islamic indexes	Treynor, Sharpe and Jensen measures	Malaysian Islamic funds outperform Indonesian Islamic Funds. Islamic mutual funds relatively outperform the market
Cakir and Raei (2007)	Sovereign and conventional bond issues in international markets by Malaysia, Pakistan, Qatar, and Bahrain.	Date of issue to end-June 2007	Daily and Weekly price data. DataStream for Malaysian, Pakistani, and Qatari bonds. Bloomberg for Bahrain	Assesses the impact of issuance of *Sukuk* on the cost and risk structure of investment portfolios	Value-at-Risk (VaR) measures. Delta-normal and Monte Carlo simulation	Correlations of *Sukuk* returns with returns on conventional bonds are much smaller than the correlations of returns on conventional bonds with each other. They can provide portfolio diversification benefits
Abderrezak (2008)	46 International Islamic funds	January 1997-August 2002	Monthly returns	Comparing returns with the market and Islamic indexes and conventional funds	Sharpe, Fama and 3-factor Fama and French model. Selectivity and timing	No significant performance difference between Islamic and conventional funds. Islamic and conventional funds did not outperform the SP500
Derigs and Marzban (2009)	Assets included in the S& P 500 index	S&P500 index on the 17/9/2007 and company data from 2006	Monthly Index and company returns from Bloomberg	Simulating various types of *Shariá* compliant portfolios	Portfolio simulation	*Shariá* -compliant portfolios can be constructed that have return and risk profiles comparable to conventional non-constrained portfolios
Haddad et al (2009)	46 International Islamic funds	January 1997-August 2002	Monthly returns	Examine systematic risk and fund returns relating to S&P500 and FT Global Islamic index	Single factor Schwert and Seguin model	Islamic mutual funds are similar to conventional funds. Volatility persistence is affected by the market proxy.
Saad et al (2010)	27 Malaysian funds of which 5 are Islamic	2002-2005	Input and Output measures (returns are an output)	Examines the efficiency and productivity (Malmquist) of the funds industry in Malaysia	Data Envelopment Analysis (DEA)	Some of the Islamic funds are more efficient than their conventional counterparts

Godlewski et al (2011)	170 Malaysian bond issues of which 77 are *Sukuk* and 93 conventional bonds	2002-2009	Date of issuance and closing stock price of companies issuing debt (from Bloomberg)	Impact of conventional bonds and *Sukuk* announcements on market	Market model event study	No significant stock-market reaction to conventional bond announcements, a negative reaction to *Sukuk* issues and significant difference in stock market reactions to *Sukuk* and conventional bond issues.
Mansor and Bhatti (2011)	128 Islamic and 350 conventional Malaysian funds	January1995-December 1998 and January 2005-December 2008	Monthly returns of funds from Morningstar	Examines descriptive statistics on return and volatility comparing conventional and Islamic funds	Summary return and volatility statistics	Islamic and conventional funds outperform the market return Islamic funds are more risky than conventional Malaysian funds
Hayat and Kraeussl (2011)	145 Islamic equity funds	January 2000 to February 2009	Weekly returns	Comparing return / risk performance against conventional and Islamic benchmarks	CAPM and investigating market timing	Islamic equity funds underperform compared to Islamic as well as to conventional equity benchmarks. Underperformance seems to have increased during the 2007/8 financial crisis.
Hoepner et al (2011)	265 Islamic equity funds from 20 countries	September 1990 - April 2009.	Mutual fund monthly returns and related data from Eurekahedge	Comparing Islamic fund performance and investment style with an array of conventional benchmarks	CAPM and Carhart models	No strong evidence that Islamic funds in general under- or outperform equity markets. National characteristics explain the heterogeneity in Islamic fund performance. Islamic funds from the GCC and Malaysia perform competitively or even outperform international equity market benchmarks.
Razzaq et al (2012)	9 Pakistan Islamic funds	2009-2010	Daily returns	Case study on the performance of nine funds	Sharpe, Treynor, Jensens alpha	Returns on Islamic funds are risk related
Białkowski et al (2012)	Countries where the proportion of Muslim population exceeded 50% - 14 countries	1994-2006 (Various for different countries)	Stock market index data from Datastream	Event study on the impact of Ramadan	Market model, event study	Stock returns during Ramadan are significantly higher and less volatile than during the rest of the year. No declines in market liquidity are recorded
Alam et al (2013)	79 *Sukuks* and 87 conventional bonds from Malaysia, Indonesia, Singapore, Pakistan, UAE, Bahrain and Qatar	2004-2012	Closing stock prices for firms issuing debt from Bloomberg	Impact of conventional bonds and *Sukuk* announcements on shareholder wealth	Market model event study	Negative market reaction for the announcements of *Sukuk* issues before and during 2007 global financial crisis.
Abdelsalama et al (2014)	138 Islamic funds and 636 socially responsible funds	January, 1989, until March,2011,	Input and output fund measures	Efficiency analysis comparing Islamic with social responsible mutual funds	Non-parametric Free Disposable Hull (FDH) efficiency analysis and second stage quantile regression	The average efficiency of socially responsible (SRI) funds is slightly higher than that of Islamic funds.
Azmat et al (2014)	Malaysian	2002-2010	Islamic bond issuers from the IFIS data base.	Evaluation of the credit risk of Islamic (*Sukuk*) bonds	Survival probability simulation	Traditional credit risk methodologies underestimate the survival risk of Islamic bonds , or to put another way, they rate them as higher credit risk.
Abdelsalama et al (2014)	138 Islamic funds and 636 socially responsible funds	December 2000 and March 2011	Input and output fund measures. Simulation to evaluate persistence	Analyses performance persistence using efficiency analysis	Non-parametric Free Disposable Hull (FDH) efficiency analysis with second and third stage analysis	Performance of Islamic and Socially Responsible funds persist but only for worst and best performing funds