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Islamic Finance and Financial Stability: A Review of the Literature*

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Abstract. This paper provides a critical review of the Islamic Economics (IEs) and Finance (IF) literature that have examined the stability of the Islamic Financial System (IFS) and its institutions vis-à-vis the conventional interest-based system. The paper analyzes forty studies over the last thirty-year period (1983-2013). Two sub-periods: pre-and post-subprime financial crisis are compared. The pre-crisis period focuses on theoretical investigations while the post-crisis focuses on empirical research. The results show that the crisis seems to have triggered more attention to the stability of IF. Seventy five percent of the reviewed literature has been carried out in the post-crisis era; about five studies have been produced per year during the last five years (2008-2013) in contrast to less than one study per year in its antecedent period. In addition, Z-score indicator has come out as the most commonly used proxy for measuring the stability of Islamic financial intermediaries. The results also show that there is a significant divergence between the theory and practice of IF. Theoretical studies claim the 'superiority' of the IFS based primarily on equity and participatory modes of financing, while empirical studies are not yet conclusive.

Keywords: Islamic finance, financial stability, Z-score, GARCH, financial ratios.

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1. Introduction

In 1985, the Federal Reserve Bank of San Francisco convened a two-day conference that gathered some leading financial experts, policy makers and academicians to address the financial instability of the conventional financial system (CFS) from different angles and perspectives. The conference proceedings were published in a special volume titled '*The Search for Financial Stability*: *the Past 50 years'* (Federal Reserve Bank of San Francisco, 1985). After about quarter of a century, in 2007-2008, the world was hit hard by far the deepest financial crisis that the advanced economies have experienced since the Great Depression. The enormous magnitude and consequences of the crisis have, once again, brought to the fore the old and thorny issue of 'the search for financial stability*'*. Incisive questions, similar to the ones addressed at the 1985 conference have been rising to the surface in a more pressing manner. What is financial stability (FS)? Why is it so important? What should be done and/or can be done to ensure it's attainment and how to benefit from its effects? Last but not least, why has it not been possible to attain this 'elusive' goal despite 'the great moderation' that was proclaimed by the advocates of deregulation in 2004, three years prior to the outbreak of the crisis and despite taking numerous preemptive measures such as the production of periodic stability reports by major Central Banks (Čihák, 2006)? Are there any 'effective remedies' and/or 'greatly moderated structural changes' that can be pursued to overcome the instability impasse?

In the midst of this heated debate, Islamic financial institutions (IFIs) and the principles that govern their operations received a great deal of attention. It has to be noted that discussion surrounding the stability of the IFS are not new; the available literature suggests that these discussions can be traced back to the early 1980s. However, most, if not all pre-crisis studies, were theoretically; conducted on an 'abstract model'. They assumed IFS to be based predominantly on equity and participatory modes of financing. The eruption of the crisis has triggered empirical inquiries. These have tried to capture the practical reality of these institutions. This research aims to provide an account of the main findings and conclusions of the literature; discuss the robustness and comprehensiveness of these results and highlight some venues for future exploration. The study utilizes an analytical 'evaluative' framework as its main investigative tool to meet the intended objectives. The discussion focuses on addressing the following questions:

- What is FS and why is it so important?
- What are the main findings and conclusions of the reviewed literature?
- How robust are these results and conclusions?
- What are the underlying assumptions, methods and arguments utilized to arrive at and/or to support the results obtained?
- What policy implications can be drawn from these findings and conclusions?

The research analyzes a considerable number of studies that are conducted before and after the global financial crisis. We anticipate that the findings of our study will be of benefit to academia, policy makers, industry players, and other stakeholders alike in terms of understanding FS complexities and the difficulty in its measurement. More importantly, the study highlights the contribution that the existence of IFIs and the principles that govern their operations can make to enrich the diversity and depth of the on-going discussion in the prevailing conventional literature about financial stability. The remainder of this paper is structured as follows: Section II explores the definition of financial stability and its importance. In section III the literature is critically analyzed and discussed. Section IV concludes the paper with some observations by the authors and suggests venues for future work.

2. Financial Stability: Definition and Importance

Although used in economic policymaking rather frequently following the recent financial crisis, FS has proven to be a difficult term to define exactly and even more challenging to measure (Allen & Wood, 2006; Schinasi, 2007; Gadanecz et al., 2009; Mohamed et al*.,* 2012; Alawode et al., 2008). Given the complexity of modern financial systems, as well as the global trends observed in recent years, FS has been associated with multidimensional conditions broadly attached to the proper functioning of financial systems. Allen & Wood (2006) provide the most comprehensive conceptual framework within which FS can be characterized.. They claim that public welfare has to be a key objective of any policy intended to establish financial stability. They also stress the importance of the measurability of financial stability and the fact that it has to be under the control of a specific public authority. This allows responsible policy makers to react in a timely manner to the early signs of financial distress

and loss of stability. The entity responsible for maintaining financial stability has to have enough authority to resolve issues related to financial instability. This might influence a broad spectrum of institutions and organizations that have no direct relationship to the root cause of the observed problems. Financial stability is also considered a dynamic concept that allows for further development of the financial system rather than rigidly preventing natural fluctuations and changes.

Given the ambiguity associated with defining financial stability, most authors associate the loss of stability with excessive risk, crises and negative externalities (Ferguson, 2002; Schinasi, 2004; Gadanecz & Jayaram, 2009; Pereira da Silva et al., 2012). Hence, to attempt to clearly define what financial instability is, one has to look into its driving forces and identify when the financial system is said to lose its stability and function in a way that adversely impacts economic conditions. Houben et al., (2004) and Mohamed et al. (2012) suggest both macro and micro approaches that can explain the reasons behind the occurrence of financial instability. In the macroeconomic approach, two key drivers are thought to trigger instability. These are: intense fluctuations in prices and overleveraging in the economy. They argue that one of the core objectives of finance for households, firms and governments is to accumulate wealth and increase fixed assets, which in turn leads to an observed increase in the prices of the associated transferable claims. Thus, too much borrowing and investment are linked to the future realization of these claims. According to Foley (2001: 2), the late American economist Hyman Minsky (1957, 1982) observed a 'tendency for financial positions to become increasingly indebted over long periods of prosperity, and hence increasingly vulnerable to debt-deflation crisis, as both borrowers and lenders become tolerant of higher ratios of debt to equity finance'. In Minsky's view, as reported by Foley (2001), a financially fragile economy, posed a difficult problem for a central bank; in attempting to control financial fragility by tightening monetary policy and raising interest rates the central bank could trigger the financial crisis it sought to avert. Minsky (1959), further claimed that when the economy is booming, investors are encouraged to engage in more speculative activities. The increase in assets' prices increases the investors' willingness to finance these activities through debt commitments that drive interest rates higher. Hence, more credit is used in financing speculative activities rather than real investment projects resulting in a

fragile financial structure. If expected returns from speculative activities do not exceed the debt, most speculators go bankrupt, and the economy ends up in a debt deflation. This process requires sound risk management practices, particularly in relation to credit and liquidity risks, without which the financial system becomes unstable and prone to crisis.

Fractional reserve practice in the financial system has also been figured out as an important source for the eruption and escalation of financial crises. The Chicago plan that was produced by some leading U.S. economists in the late 1930s' and endorsed by, the famous Yale University economist Irving Fisher, is well known and cited work in this domain. The plan 'envisaged the separation of the monetary and credit functions of the banking system, by requiring 100% reserve backing for deposits', Benes and Kumhof, (2012: 1). Irving Fisher (1936), as reported by Benes and Kumhof, (2012) claimed that the plan could achieve the following:

(1) Much better control of a major source of business cycle fluctuations, sudden increases and contractions of bank credit and of the supply of bank-created money,
(2) Complete elimination of bank runs,
(3) Dramatic reduction of the (net) public debt, and
(4) Dramatic reduction of private debt, as money creation no longer requires simultaneous debt creation.

In the aftermath of the global financial crisis, the plan has been revisited and some other proposals have been forwarded. Among the noted initiatives are the idea of limited purpose banking (LPB); Kotlikoff and Leamer (2009), Chamley and Kotlikoff (2009), and Chamley and Kotlikoff, and Polemarchakis (2012). This proposal goes in vein with the Chicago plan by narrowing the activities of the banking system through the separation of the payment and investment functions, as was the case under the plan. In their revisit to the Chicago plan, Benes and Kumhof (2012) studied the Irving Fisher claims 'by embedding a comprehensive and carefully calibrated model of the banking system in a DSGE model of the U.S. economy. They claim that they have found 'support for all four of Fisher's claims'. Not only that but they further assert that 'output gains approach 10 percent, and steady state inflation can drop to zero without posing problems for the conduct of monetary policy'. Thus the

ideas of 100% reserve, narrow banking and the barring of commercial banks and other institutions from money creation are receiving considerable attention and treatment.

The microeconomic approach concentrates on the importance of information asymmetry and irrational behavior of economic agents. In the case of a of loss of confidence in financial institutions in response to rumors about banking credits, withdrawal rates of deposits increases, forcing financial institutions to liquidate their claims and accept possible substantial losses. This may shake the credibility of these institutions and prompt banking panics that would eventually translate into excessive instability and crisis.

Given what characterizes financial stability and the core causes and effects of its loss, it becomes apparent that for the financial system to function well and stimulate further growth in the economy, it needs to remain stable. When it comes to reducing information and transaction costs; financial systems provide one fundamental function: "*they facilitate the allocation of resources, across space and time, in an uncertain environment*" (Merton & Bodie, 1995: 12). Financial instability disturbs this allocation, creating lasting negative effects on output growth. The recent financial crisis confirmed how serious the loss of stability is, not only in relation to the scale of the financial crisis but also how fast it escalated.

Chapra (2009) argued that the recent financial crisis occurred due to a number of key reasons, which are mainly the lack of proper discipline in the financial market and the detachment between the financial and real sectors. The unprecedented growth in derivatives particularly credit default swaps (CDSs) engendered high levels of speculation, which in turn aggravated the instability of the financial sector. In addition, the unjustified trust in the big banks led to the belief that these can never fail simply because governments will not allow the collapse of any of the pillars of their financial systems. He concluded that all these thorny issues related to the recent financial instabilities can be solved through the adoption of the Islamic principles of profit and loss sharing, assets backed investments and the prohibition of interest rate. These will ensure greater justice in societies and protect the economy as a whole from any instability in the global financial market.

3. Analysis and Discussion of the Literature

3.1. An Overview

To facilitate identification of the general trends that shape the literature of IF and FS on the one hand, and to ease the comparison between the results of these studies on the other, the reviewed literature has been divided into three broad categories as illustrated in Figure (1).

Figure (1) Categorization of the Reviewed Literature on Islamic Finance and Financial Stability

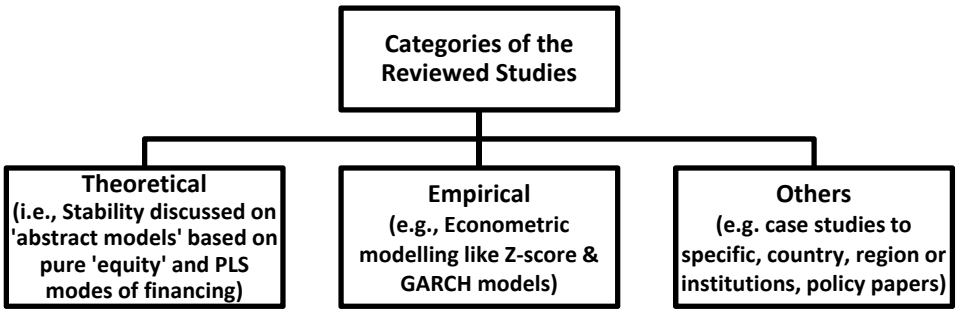
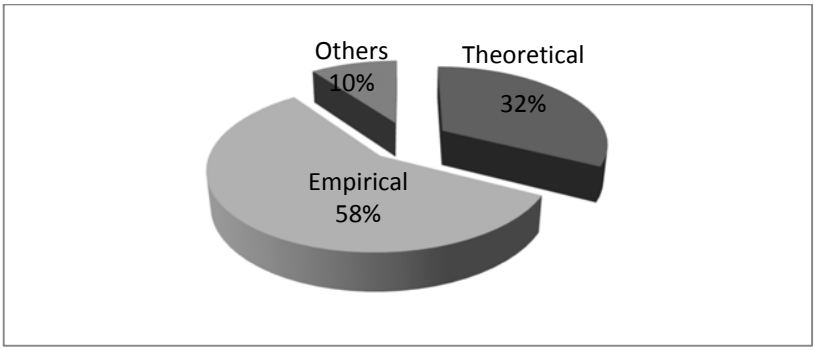


Figure (2) shows that the reviewed literature is dominated by theoretical and empirical investigations; in particular the latter. These two categories constitute ninety percent of the total number of studies analyzed in this paper. This trend has given rise to a number of interpretations. One of these is the view that this 'robustness' and 'soundness' of IFIs is due to their inherent features that promote stability. This view stems from the limited number of cases of distressed IFIs since the inception of this type of intermediary in the sixties until now(1). The other interpretation relates

(1) In his exploration of the failure of Ihlas Finans, in Turkey in 2001, Ali (2007) mentioned some of the distressed IFIs. Bank Taqwa was closed in 2001; *Faisal* Islamic Bank closed its operations in the UK for regulatory reasons. According to the available data, there have been some other incidents; the Mit-Ghamr experiment of the sixties in the rural Egypt was brought to an end for political reasons. Kuwait Finance House went into difficulty in 1984 due to lack of diversification in its investment portfolio. With regard to Faisal Bank that has been mentioned by Ali, it must be clarified that Faisal Bank never operated in the UK. It was Al-Baraka International that had operated in the UK and ceased its operations in early 1990s, but it was able to honor all deposit obligations without any troubles (Wilson 1999: 428).

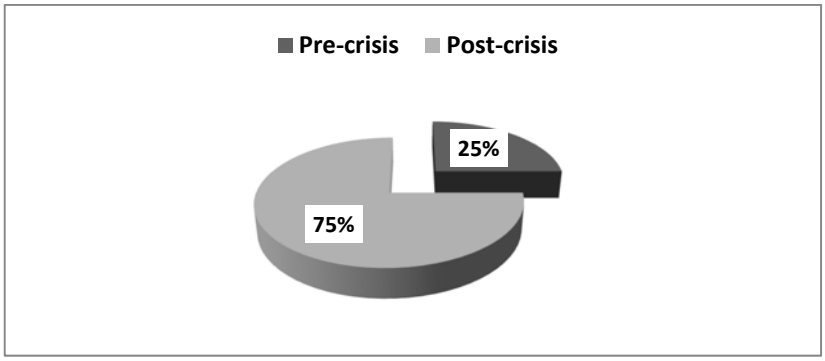
it to the infancy of the industry, and it's insignificant presence on the international financial stage. This view is supported by the reality that the total value of the entire IF industry does not exceed 1.5% of the total value of international financial system (Beck et al., 2010: 433). We believe that as far as FS is concerned, it is very difficult to support one argument against the other unless substantial evidence from a large number of actual practices of these intermediaries is assessed.

Figure (2) Distribution of Studies by Category



As for the distribution of studies in the two sub-periods; Figure (3) shows that after the subprime crisis, or international financial crisis as some prefer to describe it, more attention has been paid to the stability of IFS. Seventy-five percent of the reviewed studies (30) were conducted post-crisis while twenty-five percent (10) were carried out over the span of about quarter of a century (i.e., 1983-2007).

Figure (3) Distribution of Studies over the Covered period



3.2. Analysis and Discussion of Findings of the Theoretical Studies

Appendix Table (1) presents a summary of the main findings and conclusions of the reviewed theoretical literature and case studies. The table also highlights the major utilized methods of analysis in these studies. It is apparent from the last column of the table that almost all studies(2) claim the 'superiority' and inherent stability of IFS over conventional bank counterparts. What are the bases of such claims? And how robust are they?

From a careful examination of these treatises, it was found that the authors' elaborations have been based, implicitly or explicitly, upon the following arguments and assumptions:

1. Debt and leverage are the main driving forces of financial instability in the conventional financial system (CFS) (Askari et al., 2012). These two features emerge from the existence of a predetermined rate of return in the form of 'interest' ('*ribā*' or 'usury') in the current practices of the CFS. According to the reviewed literature, since the beginning of the 19th century until now, many renowned conventional economists have observed a number of common features that precede the occurrence of financial crises (FCs) (Askari et al., 2012). Among the features related to the presence and wide practice of 'interest' are the following(3):

(2) There are two exceptions to this general trend; one is explicit, the other is implicit. The explicit standpoint is represented by Naqvi (1981: 127) who holds the view that a total equity-based system "will be highly unstable". This is because, according to him, equity-financing, in contrast to interest-financing, makes the return on investment "a function of business conditions in general and of the efficiency with which the enterprise is being run. Hence an element of uncertainty is introduced into the investor's expectations. In order to hedge against the probability of a loss, ways and means must be found, through some kind of deposit insurance scheme, to guarantee . . . the normal value of deposits. [Otherwise] . . . not only the banking system, but the entire economy will become highly unstable". Naqvi (ibid: 136).The implicit view is of El-Gamal (1998). His study departed from the prevailing theoretical framework to construct a model based on 'close-to-reality' postulation, as he portrays it.

(3) It has to be noted that the authors of this study are not denying or underestimating the contribution of other factors in triggering or worsening FCs, like the lax regulations; it is, rather, a consistency of methodology that forced the authors to limit the discussion to factors relating to interest.

- An extended period of low-interest rates as was the case in the subprime financial crisis of 2007-2008(4). Such a policy has led to the enormous growth of unbacked expansion of credit. As quoted in (Askari et al., 2010), Soros (2008) noted: "*when money is free [or quasi-free], the rational lender will keep on lending until there is no one else to lend to*". This situation has been attributed to be the reason behind the proverb: 'too much money is chasing too few assets'. There is no way that 'too much money' can be absorbed except through appearance of bubbles that will grow without any economic foundations. The appearance of bubbles will feed the expansion of unbacked credit and the vicious circle will continue until the bubble bursts because the massive volume of the unbacked credit was based on mere promises that would need to be validated at a certain point of time in future. Thereafter another cycle of bail-out programs from taxpayers' money and the cheap money obtained through the zero or zero bound interest rate policy (ZIRP); quantitative easing and other non-traditional monetray policy measures will emerge to aid the rescue of 'too-big-to-fail' institutions and to fix other financial and economic disruptions.

- Minsky, whose work is well-known in this domain, departed from the mainstream postulate of the Efficient Market Hypothesis (EMH) to propose the Financial Instability Hypothesis (FIH) instead and has been cited in various instances of the reviewed literature. His extensive work in the study and analysis of financial crises, that has been carried out over approximately forty years(5) led him to conclude that there is a fundamental flaw in the conventional economic system. This flaw is related to the type of financing regime and the contractual arrangements that develop over time. He stated:

> *"a fundamental property of all capitalist economies is the existence of a system of borrowing and lending based upon various margins of safety… a debt instrument or a lease provides for payments to be made on account of both interest*

(4) Yet these low or even zero-rates are presented as a remedy in the aftermath of FCs. This paradox indicates the puzzling dilemma of the existence of interest rate itself.

(5) His first work appeared in 1957, and the last in 1996; the year he passed away.

> *and principal. An equity liability has only a contingent commitment to make payments, dividends need to be paid only if earned and declared, and there is no contractual need to repay the principal. For any given cash flow, from operations or from the fulfillment of owned contracts, the greater the share of equity financing in a balance sheet the greater the margin of safety that protects the owners of the non-equity liabilities",* Minsky (1991: 12).

It is apparent from the above arguments and observations, that the authors of the reviewed investigations share Chapra's view that inadequate market discipline in the current system is the primary cause of FCs, and this indiscipline is, in turn, the result of the risk-shifting paradigm under the 'interest-bearing' mechanism and the absence of risk-sharing as is the case with equity and participatory modes of the financing system (Chapra, 2007a). According to Chapra, instead of making depositors and bankers share in the risks of a business, it assures them of the repayment of their deposits or loans with interest. This situation has created 'carelessness havoc' in the behavior of depositors and bankers alike; in such a way that they pay little attention to the soundness of the 'financee' to concentrate on the guarantees and collaterals that they obtain. Thus, to restore market discipline to the system, according to this analysis, a shift has to take place from the heavy reliance on debt financing based on interest-bearing instruments to more of the likes of equity financing. This brings us to the next point: the nature of financial intermediation in an IFS, according to the postulations of these authors.

2. The IFS framework utilized in the analysis of these studies is the one that is presumed to be based on 'total' or 'pure' equity and profit and loss sharing (PLS) modes of financing. This model has been derived on the basis of the authors' convictions, explicit or implicit, that this is the 'Islamic' system that ought to be followed according to the requirements stipulated in the primary sources of Islam. For instance, some authors rely on their presumption that 'Qur'ān prohibits debt-based contracts', and 'Islam offers a system that prohibits all debts'. To further strengthen their arguments, these authors proclaim that the type of IFS they propose goes in 'spirit', if not in words, with the reforms or the specified proposals of some conventional economists in the aftermath of large

financial crises. The Chicago plan of the 1930s and Limited Purpose Banking (LPB) of Chamley and Kotlikoff (2009) have been mentioned as illustrative examples. According to this vision a two-tier *muḍārabah* model for financial intermediation with a 100% reserve requirements for sight deposits has been developed. Thus, banks are barred from money creation as the payment funtion is ought to be separated from the investment one, (Iqbal and Mirakhor (2011) and Askari et al. (2010 and 2012). Furthermore, there have been other explicit references to IF principles by other economists in the light of the unfolding inflictions of the 2007-2008 financial crisis. Buiter, an ex-LSE professor of economics, for instance, stated that: "if too much debt is part of the problem, reducing that level through equitization is part of the solution (2009, blogs.ft.com)." In stressing this point Buiter referred to the application of IF principles, in particular, "a strong preference for profit and loss-sharing and risk-sharing arrangements and a rejection of '*ribā'* or interest-bearing debt instruments". Two years later, Rogoff, a Harvard economist, echoed this in a similar vein, "*we need to recognize that the real problems [in the financial system] are rooted in excessive concentrations of debt ... If G-20 governments stood back and asked themselves how to channel a much larger share of the imbalances into equity-like instruments, the global financial system that emerged just might be a lot more robust than the crisis-prone system that we have now*" [2011, project-syndicate.org]. He went further to point out that "perhaps scholars who argue that Islamic financial systems' prohibition of interest generates massive inefficiencies ought to be looking at these systems for positive ideas that Western policymakers might adopt". Chong and Ming-Hua (2009) also pointed out that the profit and loss sharing system forces interest-free banks to greater market discipline.

The above points (1 and 2) are the basis that the authors have used to support the claim of superiority of IFS over that of its conventional counterpart with respect to financial stability. Nonetheless, it has to be noted that these studies tend not to give due consideration to some fundamental issues. For example: the application of the 'aspired model' depends on strong adherence of ''individuals' to Islamic teachings, on the one hand and the laws and regulations that prevail at the time of application, on the other. Both factors are relevant to determine the success or otherwise of the 'ideals' that are presumed in these studies. Some authors do acknowledge these facts by highlighting tax and

regulatory 'biases' in most, if not all, jurisdictions towards debt instruments, particularly interest-based modes. Others have pointed to the 'heterogeneity' of economic agents under an applied IFS, where the whole Islamic system is not fully used. Therefore, they question the 'realism' of the view that "*Muslims always practice Islam and abide by its teachings in financial activities and daily life*" (El-Gamal, 1998; Hassan & Kayed, 2010). The degree of such an adherence varies considerably. Moreover, 'adherent' or 'practicing' Muslims are not living in an 'isolated' village. They interact with their societies; with economic agents of other faiths and cultures. These factors affect the sort of 'possible' and probably 'plausible' financial model for that society or community. In the light of these and other factors, some have gone further by acknowledging the 'inaccurate' proposition that the 'pure' equity financing regime under the Islamic system is the 'only plausible' model. For instance, in an unpublished note Zarqa(6) (2012) states "*I asserted [in the 1983 article] that in an Islamic system... all business financing must be based on various forms of equity… I realized later that this assertion is not justified neither by Islamic* Sharīʿah *nor by the reality of Muslim economies past or present… This being the case, it becomes necessary to examine further the stability implications of Islamic debt*(7) *vs. conventional debt*. Hence, it is a big error to entirely rule out debt and debt instruments from an Islamic financial system, as some have suggested. This would neither be feasible nor possible.

Moreover, the assertion that Islam 'prohibits' debt is an inaccurate interpretation of the Islamic point of view. Reference to the basic sources of Islam, the Qur'ān, and Sunnah, proves the contrary. For instance, the longest verse in the Qur'ān is the verse on debt (Chapter 2: Verse 282). Needless to say that debt referred to in this verse is the 'permissible *dayn*' under the *Sharīʿah* norms and standards, and not a debt in the narrow sense as predominatly practiced in the conventional financial system. Ironically, this verse immediately follows the last and the strongest verses that have condemned and prohibited *ribā*. This verse provides detailed measures and procedures that can be implemented to

(6) The authors of this study are very grateful to him for this and for providing a soft copy of his 1983 article.

(7) While accepting the possibility of establishing IFS based on debt Zarqa noted that: "(a) re-financing of old debt by issuance of new debt and (b) selling of debt to third parties, are both strictly prohibited", under such a system.

safeguard the interest of the parties entering into debt contracts, including deferred and installment sales. As a result, throughout the history of Muslim societies dealing with debt instruments has been practiced. Indeed, there are statements in the basic sources of Islam against the 'unnecessary' use of debt(8), but this does not make debt contracts 'illicit' or 'impermissible'. There has to be a clear understanding and distinction between the two positions. It would, therefore, have been ideal if some theoretical effort has been devoted in exploring the implications of constructing an 'adherent' financial system, at least on the assets side of financial intermediaries, on the basis of Islamic debt instruments; like deferred and forward (*salam*) sales. This is because the verse 275 qouted the pegins of *Makkah* as making a comparison between sale(9) and *ribā* as a protest to the categorical proscription of Riba in the Qur'ān. Moreover, current practices in the IF industry have shown insignificant presence of PLS products on the assets side of Islamic financial institutions. For instance, Al-Shubaily (2011: 2) found that PLS modes of financing on the asset side of twelve Saudi banks constitute no more than 3% of the total assets of these institutions. In Malaysia the situation is even worse. According to Chong and Ming-Hua (2009) 'only 0.5% of Islamic bank financing is based on the PLS modes of *muḍārabah* and *mushārakah* financing'. On the liability side, in the Malaysian case, *muḍārabah* deposits, account for 70% of total Islamic deposits (Chong & Ming-Hua, 2009). Furthermore, these 'theoretical' statements have to be interpreted carefully. Chong and Ming-Hua (2009) have shown in their work that Islamic deposits are not really interest-free. In practice, they are very similar to conventional banking deposits.

Despite the above reservations, it has to be acknowledged that IBs have shown relative stability in the first wave of the international crisis of 2007-2008. As a result, their 'theoretical' proposition of pure equity or 'superficial' link of financing to real activities may bring more discipline to financial system behavior. This takes us to the asset-backing principle

(8) See Al-Suwailem. (2011: 11-104) for further details and elaboration on the issue.

(9) Majority of the scholars are of the view that this sale is the deferred one. Scholars of the exegeses of the Qur'ān quoted Ibn Abbas saying that the verse refers to forward (*salam*) sale. Al-Qurtubi stated that there is a consensus (*Ijamā*) that the verse covers all types of permissible debts; like *Qard Hassan* (interest-free loan and deferred sale), Al-Qurtubi (U. D), *Al-Jamae Li Ahkam Al- Qur'ān* (Concise of The Rules of The Qur'ān), IslamWeb Library: http://library.islamweb.net.

that governs the operation of IFIs. This principle has not been discussed thoroughly in the reviewed theoretical studies. Discussion of this principle is left to the empirical part discussed in section 3.3.

The essential message that we would like to make relates to the greater role that should be given to the risk-sharing paradigm in the world of finance as opposed to the risk-shifting that dominates the current form of the financial system; "*whether the reforms implemented are called the Chicago Plan, Limited Purpose Banking, or Islamic finance, the message is unified: the world needs a financial system that reduces risk-shifting and debt financing in favour of risk-sharing and equity financing in order to create a financial system that promotes growth and minimizes instability*" (Askari, 2012: 8).

The authors of this research believe that there is a strong case for this 'plea'. It deserves due consideration if policy makers and economists want to widen their horizens beyond the 'tool box and policies' of conventional wisdom.

3.3. Analysis and Discussion of the Findings of Empirical Studies

The main findings and tools of investigation used by the empirical literature are presented in Appendix Table (2). More than fifty-five percent of the studies used the Z-score stability indicator, while the remaining utilize other techniques. It is also worth mentioning that the approach used in these studies is to examine the stability of IF from a micro-perspective with particular reference to Islamic banks (IBs). This is primarily because IBs, like their conventional counterparts, aim at financing the economy by channeling depository funds from savers to investors. This particular characteristic of these institutions has historically led them to be heavily regulated. If the argument were to stop here, Islamic and conventional entities may be presumed to look identical. However, that is not the case. The adopted platform of IBs is different in that they reject the use of interest rates and engage in profit and loss sharing projects closely attached to real assets. Boumediene and Caby (2008) agree that due to the risk-sharing principle and asset diversity, Islamic banks are more resistant to adverse shocks. However, this theoretical argument has to be tested empirically in order to assess the extent to which Islamic banks are exposed to financial instability. The

level of stability has been widely measured in the conventional literature using the Z score. The same is the case in the IF literature as may be seen in Appendix Table (2). For instance, Čihák and Hesse's (2008) investigation was one of the most influential empirical studies that looked at the stability of Islamic banks. They measured financial stability using the Z- score defined as $z = (k+\mu) /\sigma$, where k is equity capital, μ is average return as percent of assets, and σ is standard deviation of return on assets as a proxy for return volatility.

Assuming the returns are normally distributed, they utilize Z scores to measure the extent of volatility in the realized returns. Hence, a lower Z-score indicates a higher insolvency risk. Čihák and Hesse (2008), Beck *et al*. (2010), Shahid and Abbas (2012), Masood et al. (2011), Gamaginta and Rokhim (2012), and Altaee *et al*. (2013) all used the Z scores as proxy for financial stability. Čihák and Hesse (2008) claim that the strength of such a variable lies in that it is an objective variable; it intends to measure insolvency risk regardless of the particular characteristics that govern functioning of any bank, Islamic or conventional. However, one potential weakness associated with it is that it does not take into account the fact that Islamic banks apply more protective strategies through having their investments backed by real assets. Also the profit and loss sharing principle allows these banks to pass on a proportion of their risk to the investors, which reduces their overall exposure to risk and financial instability.

Unlike the theoretical studies, the findings of the empirical research are not so conclusive. Some support the theoretical 'superiority claim', others are in contrast to that and a third category may be considered as 'neutral'. How robust are these results? And what can explain their departure from theoretical findings?

Several possible factors can be mentioned as explanations. Two elements are at the forefront. These are:

1. The 'applied business model' of IBs is almost identical to the conventional interest-bearing one. It is neither a 'two-tier *muḍārabah*' nor a *wakālah* (agency) based model as was proposed by the 'pioneers' and other 'theoreticians' of Islamic economics and finance. It is rather a specially 'engineered' debt model, particularly on the assets side, to be

Sharīʿah-compliant through the work of Sharīʿah advisory boards, lawyers, and practitioners. The framework adopted in the development of Islamic financial instruments has been to design products in such a way that these are almost equivalent in economic and risk characteristics to conventional debt instruments. Was this model pushed by the 'unsupportive' regulatory regimes in many jurisdictions, was it impacted by fierce competition of conventional banks, or was it driven by the profit maximization 'short-sighted doctrine' of the 'runners' and shareholders of these institutions? These and other arguments have been in circulation for some time. The fact is that this applied model is far from the 'theoretical ideals' that was, and still is, advocated by many Muslim economists, some jurists (*fuqahā'*), and even some pioneer practitioners.

2. The nature of empirical investigations is such that it is very difficult, if not impossible, to arrive at the same conclusions all the time whether by different or the same authors. These investigative tools are constrained by a number of factors; especially in the case of IBs. Paramount among these are:

- Sample size, number of observations and time span. The data provided in the Appendix table brings out this issue very clearly.
- Data quality, availability, and reliability are major obstacles in arriving at robust findings and conclusions. Much of the reviewed work has utilized commercial databases like Bankscope while others have used the Islamic Banks and Financial Institutions Information (IBIS) of the Islamic Development Bank (IDB) and Zawya. Furthermore, most, if not all, investigations have consulted, in one way or the other, whatever they have been able to obtain from the available financial reports produced by IBs to overcome some of the shortcomings in those databases. Despite this tremendous effort carried out by some authors, the lack of a unified or an internationally recognized accounting standard for IFIs is another dimension that should not be underestimated in affecting the results of quantitative investigations in Islamic economics and finance. A longstanding and very experienced Western economist, Volker Nienhaus (2012, pp. xxv – xxvi)[(10)], emphasized this point in

(10) Volker Nienhaus, (2012).

discussing the 'research and academic careers' of IEs and finance in Western higher education. He noted that many 'talented students chose interesting topics for empirical studies but did not recognize the grave shortcomings of the data they used'. He went further to state that "many cross-country comparisons of Islamic and conventional banks – for example, with respect to efficiency or profitability - use Bankscope data … this database suffers from a number of misspecifications and gaps with regard to IBs(11)". There is, even; another deeper dimension that many may not be able to detect due to their limited knowledge of IF instruments and practices. It is the issue of the product and instrument names; under such circumstances, 'even if the data was complete, a researcher can arrive at gross misinterpretations of IF in comparison to conventional finance if he or she does not consider that the same name can have different meanings for different institutions(12)'.

- There may be groupings inconsistency in some investigations in terms of putting the fully-fledged institution on a par with an Islamic 'unit' or 'windows'.

The above remarks must not be interpreted as a call for abandonment of quantitative tools to examine particular issues in IEs and finance. The main concern is the fact that a researcher has to be cautious and aware of the limits and constraints of such tools in interpreting the results or in drawing some lessons and policies.

Finally, despite all what has been said about 'the applied business model' of IBs and the reservations that have been made against its practices, it has to be noted that during the first wave of the subprime crisis Islamic institutions proved to be more resilient than their conventional counterparts. Was that due to their 'insignificant' presence on the international financial stage or was it due to their 'conservative' policies as some authors have tried to highlight? We have discovered that

(11) The consolidated and unconsolidated issue, as pointed out by Čihák and Hesse (2008), is a typical example of that.

(12) The authors of this research came across an incident similar to this in a financial report of a GCC IB where the institution named an item in its balance sheet as an 'installment or deferred' sale, whereas in reality it was a '*tawarruq*' transaction that is widely practiced in this region, especially in Saudi Arabia.

regardless of any reason that was given to underestimate this fact, almost all of the reviewed empirical studies point out that IBs did not engage in holding 'toxic assets' that brought renowned and long-established conventional institutions to a halt. However, some IBs have been affected by the second wave of the crisis (i.e., when the real economy was hit). For those who stressed this fact to show that these institutions, like their conventional counterparts, are not immune from the effects of FCs this argument may not serve their purposes. On the contrary, the argument may support its antithesis which states that IBs have 'built-in' features that may shield them from the fragility that conventional banks suffer from. These features are derived from the basic tenets that govern the operations of IBs. In this regard, the asset-backing principle may be a very useful feature that allows Islamic institutions to absorb financial shocks more than their conventional counterparts.

4. Conclusion

In this research we reviewed a considerable number of financial stability studies relating to Islamic economics and finance; an emerging discipline that has attracted the attention of many circles interested in the stability of the contemporary global financial systems. A major conclusion of the review is the fact that despite tremendous efforts that have been devoted to understanding financial stability over the recent past, this work is still ongoing. As for policy implications, the findings confirm that prevailing legislative and tax biases in favor of debt instruments has to be corrected to provide a 'level playing field' for equity and participatory modes of finance. The authors of this investigation endorse the idea that leveraging and deleveraging processes have affected negatively on almost if not all, economies to various degrees and at different levels. Well-placed and well-documented studies from prestigious entities such as the IMF and the EU pointed to this (see, for example, De Mooij, 2011; Fatica et al., 2012). The other distorting practice, *per se*, in modern financial systems, is the dominance of 'risk-shifting' mechanisms through debt instruments based on predetermined rates of interest in an uncertain world of investment and production processes. Two fundamental tenets of IF have been identified as the most important 'built-in' features that may stand behind the inherent stability of the IFS. These are: risk-sharing and asset-backing principles. Thus, an enabling environment, as advocated by the theoretical literature, for financing arrangements based on these

principles has to be seriously taken into consideration. The findings also reveal that the theoretical literature on financial stability is almost unanimous in asserting that the Islamic financial system is superior to the conventional system. The arguments put forth in these treatises have been identified as the inherently endogenous fragility of the conventional interest-bearing financial system as demonstrated by the recurrence of FCs; the resemblance of the proposed financial reform plans to the IFS, the maturity matching of assets and liabilities of intermediaries under the IFS, and the 'pure' equity and participatory financial instruments of the 'ideal' IFS.

A major drawback of the theoretical literature is its 'over-emphasis' on the 'pure' equity and participatory financial arrangements as being the 'true Islamic model' for financial intermediation, to the extent of creating an impression that Islamic teachings ban all forms of debt financing from the economy. Indeed, Islamic teachings do discourage debt undertaking through some strong statements and stringent provisions, but this should never be equated to a 'total' ban on debt and debt instruments from the economy. The two primary sources of Islam, the Qur'ān, and Sunnah, contain numerous stipulations regulating debt dealings. This is being the case; one may ask: can an Islamic financial system be primarily built upon permissible modes of debt and credit financing? This is an issue that has not received due consideration in the theoretical literature. Furthermore, debt has been practiced in the Muslim societies since the early days of Islam until now; it has a role to play in the economy. What are the limits and constraints of this role? These are important questions that need to be explored thoroughly on the bases of the guidelines provided by *Sharīʿah* in this domain. In addition to these reservations and questions, it has to be stated clearly that what these writers propose, as models for financial intermediation under an Islamic system, represent 'an' not 'the' Islamic view-point. Therefore, there is a definite quest for the 'revisit' of 'Islamic theorems' of financial intermediation to assess their relevance and practicability. This revisit may reveal the existence of a variety of 'Islamic models' of financial intermediation to cater for various needs and to adapt to certain impediments and realities. Under such a revision, examination of concrete and well-defined issues like maturity transformation, liquidity creation and distribution by IFIs will provide an in-depth view of the particularities of Islamic financial intermediaries. Are they 'liquidity

creators' or just distributors and passers? And what are the regulatory and supervisory implications of such findings?

In contrast to theoretical treatises, empirical studies are not conclusive. The paper identified and explored the bases of these findings. In addition to the data issue that has been identified as a major concern; the results also suffer from two other drawbacks. The first is related to the usefulness of such studies to interested stakeholders. Hasan (2005: 16) points out "*let it be understood that econometric models are not readily understood by the common man, the managers of Islamic banks, Sharīʿah advisors, or policy makers – the groups that are interested in understanding Islamic banking. Who then are our addressees?*" The second is related to the arguments used to interpret the results. Most of the studies refer to the PLS feature of the IFS to either support the stability and/or the instability features of Islamic financial intermediaries. This seems to be an unconvincing or contradictory argument because the applied '*Sharīʿah*-compliant' or 'Islamic' business model is far from adhering to this feature. It is, therefore, of prime importance that this literature should explore other tenets of IF to pinpoint the relevant factors that may be attributed to the stability or otherwise of the Islamic system.

Finally, as noted by the Deputy Governor of the Central Bank of Canada, Agathe Côté (2012: 2), 'macroeconomic models have long been used to guide monetary policy decisions by central banks, models of financial stability and systemic risk are much less advanced'. This area deserves more attention from academia and policy makers alike. So far empirical studies on Islamic and conventional, have been conducted from a micro-perspective. This approach does not capture many of the interconnected, dynamic and complex features of modern financial systems.

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Appendix

Table (1). Summary of the Findings of the Theoretical, Natural Experiment, and Policy Investigations.

Author (s)/ Publication year	Data and Method (s) of Analysis	Main Findings
Zarqa (1983)	General remarks such as: agreement of many conventional economists that debt-financing is a major factor destabilizing investment in capitalist economies; the speculative demand for money is a source of instability in the Keynesian system; the view held from corporate finance that an increase in debt-financing (as opposed to equity-financing) of a firm increases its risk of insolvency and magnifies the relative fluctuations; "hot money" movements are a destabilizing factor; and strict prohibition of interest eliminates the loan market and implies that all business financing must be based on various forms of equity.	Equity financing is intrinsically more stable than the one based on interest.
Chishti (1985)	- The relative stability of investment under the two systems of fixed and flexible returns to capital is examined through a qualitative general model of two differential equations to express financing conditions and investment behavior. - The model is closely related to Minsky's approach of analyzing the inherently unstable character of a financially developed and sophisticated capitalist economic system. - The added wrinkle to Minsky's model is to interpret the fixity of financing terms, vis-a-vis the uncertainty of profits, to be mainly responsible for the gap between cash flows and payment commitments.	- The spread between cash-flows (i.e.,, profits) and payment obligations (i.e., interest payments) is the primary source of instability in investment. - The real source which generates the above-mentioned gap is the fixity of the dated payment commitments versus the uncertainty of cash flows. - IF has a built-in stabilizer to reduce the volatility of investment. - Islamic financing facilities make the payment commitments a function of cash flows.
Khan (1986)	Theoretical aggregate macroeconomic model is used to study the behavior of the Islamic banking system. The framework is based upon the model developed by Meltzer (1951) and extended by others.	- The Islamic banking model based on equity and participation bears a resemblance to the proposals made in the literature on the banking reform in many countries, especially the USA. - The IB model may prove to be better for adjusting to shocks resulting from crises (i.e., shocks to assets are absorbed by liabilities). - The real values of assets and liabilities in this model would be equal at all points in time. - The banking system discussed in the paper is a 'two-window' model: one window for demand deposit (100% reserve + no return or interest to be paid), the other for investment purposes based on PLS or equity mechanisms (no guarantees on principal and return + no official reserve requirements). - Many eminent western economists (e.g.,

Author (s)/ Publication year	Data and Method (s) of Analysis	Main Findings
		Irving Fisher, Henry Simons, Milton Friedman) have argued, according to Khan (19986) that the current (one-sided liability) interest-based financial system is fundamentally unstable.
Mirakhor et al. (1991)	Development and use of a simple general equilibrium model for an open-economy to compare the stability of an interest-free PLS (equity) based economy vis-à-vis the prevailing interest-based system. The study is an extension of previous researches that have been based on a closed-economy presumption (e.g., Khan, 1986).	- The IFS has the capacity for better adjustment to macroeconomic disturbances that require shifting of resources from traded to non-traded sectors than does the conventional interest-based system. - The IFS would be based on a 'two-tier *Muḍārabah*', or the 'two-window model'; 100 per cent reserve for demand deposits (i.e., deposits of this category are regarded as *Amānah*, and a PLS arrangement for investment deposits.
Zuberi (1992)	- Using Time-series data on Pakistan (1973-1989), a modified version of the Keynesian type demand function for money has been applied. - Separate estimates were made for the velocity of circulation of money. - The hypothesis: the public's demand for non-interest bearing money tends to be stable relative to the interest-bearing demand for money.	- The velocity of circulation of money has been stable. - The desired demand for real money is positively related to real GDP and negatively to interest rate. - The active support by the government in the operations of the banking industry can bring about the desired results. - The results do not support the hypothesis that the public's demand for money tends to be more stable in the absence of interest-bearing financial assets.
El-Gamal, (1998)	- The stability of the institution of Islamic banking from a microeconomic point of view, where the survival of this institution depends on its ability to maintain sound financial positions for its customers (devout Muslims, and others). - An evolutionary game-theory model of the dynamics of Islamic banking in the existence of other interest-based financial institutions.	- The necessary and sufficient condition for Islamic banking to survive in the long run is the existence of agents who are willing to interact symmetrically with the Islamic and the interest-based parts of the economy, and that those agents deal among themselves in an Islamic way. - The Malaysian experiment of a dual-system that supports and regulates the two 'tiers'; Islamic and conventional, may support the author's finding.
Chapra (2005)	- The study uses some examples of some recent crises such as: The US stock market crash of 1987, the bust of the Japanese stock and property market bubbles in the 1990s, the 1992-93 ERM breakdown, the Mexican crisis of 1995. - Systemic and intellectual analysis based on observing the recurrence of financial crises over the past few decades. - Arguments and analyses of some conventional economists and institutions about the imbalances created by interest-based instruments are examined.	- 'Interest' creates market indiscipline because of the assurances given to a depositor or a banker to claim a return without participating in the risks of the banking business. - A greater role for equity and risk-sharing instruments to bring market discipline and stability to the financial system.
Chapra (2008)	- Based on observation of same crises as in Chapra (2005) - Intellectual analysis and arguments based on: - The 'impossibility' of designing a new	- The false sense of immunity from losses introduces a fault line into the system. - One of the major causes of these crises is the absence of risk-sharing - Risk-sharing along with the availability

Author (s)/ Publication year	Data and Method (s) of Analysis	Main Findings
	financial architecture without first determining the primary cause(s) of crises. - The work of eminent Western economists, e.g., Fisher, Simon, Galbraith, Minsky and Rogoff, with regard to their analyses of the recurrence of Financial Crises (FCs) and their 'call' for greater reliance on equity financing are examined.	of credit for primarily the purchase of real goods and services = greater market discipline + reduction in instability. - A Greater role for equity financing, but debt still has a role to play. - The widening of the 'housing finance cooperative' schemes to cater for the needy like the 'sub-primers'. But the pool of money sources should be extended to include: banks, corporations and affluent individuals. - The absence of the 'risk-sharing' element in financial practices created the 'market indiscipline', and thus the culmination of the abnormalities of 'debt explosion', 'high leverages', and speculation.
Askari et al. (2012)	- Sequence of analysis and arguments to conclude the inherent stability of the IFS vis-à-vis the inherent instability of the CFS. The analysis has been based on: - Deduction of the common factors that led to FCs to picture the general pattern of the identification and sequence of these factors. - The factors that led to the crises are absent in the IFS. - The proposed plans to eliminate crisis factors from the financial sector like the Chicago plan and Limited Purpose Banking (LPB) proposed after the INFC are of equity nature of the financial claims and obligations. These proposals resemble the IFS, which is an equity-based system. - A theoretical model to prove the inherent stability of the IFS. This model is based on the classical assumption of full employment equilibrium besides total preclusion of debt and debt trading.	- The general pattern displayed by the historical record of FCs reveals that each episode was preceded by rapid credit expansion, a speculative boom and excessive price volatility in one or more asset classes. This boom is then followed by a burst of that asset. This in turn leads to asset price deflation and banking failure. - Conventional banks (CBs) fail to meet inherent stability conditions even in the presence of prudential regulations.' - The instability of the conventional finance is not limited to the role of commercial and investment banks. - The credit multiplier notion is irrelevant for IF. The corresponding notion is savings multiplier'. - The main principles of IFS like the prohibition of interest contribute to its inherent stability. - IBs do not create and destroy money through the credit multiplier as is the case under CBs. - The classical model, based on full employment, is representative of an Islamic economy where interest is precluded.' - An IFS is a PLS equity-participation system. - The equity-based system is not alien to the Western thinking in financial intermediation. - Under the IFS maturities of assets and liabilities are assumed to be matched.
Hassan et al. (2010)	- Systemic analysis of the causes of the crisis and measuring these causes against the intrinsic principles of the IFS. - The resilience of the IFS is seen through the absence of the factors that led to the	- Government bailouts of existing banking systems neither present long-term solutions to the problem nor give assurance that similar crises will not happen in the future.

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	sub-prime crisis; 'Such crisis would not have occurred under an Islamic financial system – due to the fact that most, if not all, of the factors that have caused or contributed to the development and the spread of the crisis, are not allowed under the rules and guidance of Sharīʿah'.	- Evidence at hand strongly suggests that IF is well endowed to deliver noteworthy contributions towards a more healthy and stable international economy. For instance, 'the principle of, 'no pain, no gain' embedded in the Islamic financial structure … [can] help introduce greater discipline into the financial system. - Theoretically, it would be impossible for a crisis resulting from the factors that triggered the like of the subprime mortgage crisis to take place in the Islamic capital markets sector. This is due to several reasons; among them are: ban on interest, ban on selling what one does not own or possesses, ban 'to sell a debt against a debt, as IF is based on equity capital rather than debt. - The above results are based on many assumptions. The foremost among them is 'Muslims always practice Islam and abide by its teachings in financial activities and daily life. - There is no absolute assurance that IF, once mature, will weather a similar financial crisis in the future unless it commits itself to being Sharīʿah-based (the substance) rather than Sharīʿah-compliant (the form)'. Therefore, only 'an honest implementation of the Islamic theory of finance is potentially capable of solving, and in all probability averting, such crises from happening.
Iqbal et al. (2011)	- Systemic and intellectual analysis of the prolonged episodes of financial turbulences and some of the proposals that have been suggested by some eminent conventional economists. - The Chicago plan, the Limited Purpose Banking (LPB), and the analysis of conventional economists like Fisher, Allais and Minsky have been cited to prove the inherent instability of the conventional financial system. - Additionally the reference to the credit multiplier and money creation under the conventional system as endogenous features that feed the persistent instability of the conventional system.	- Only a financial system along Islamic principles is immune to instability. - For a given regime of financial institutions, the lesser the weight of debt refinancing, the greater the stability of the system. - The Islamic system is not expected to experience deep boom and bust cycles. One of the reasons for this feature is that IBs do not create and destroy money. Besides, financing is tied to real activities. Speculation, gambling, and the like are not allowed. - The ideal IFS would be based on the 'two-window' model of intermediation; 100 per cent reserve for demand deposits, and a PLS mechanism for investment deposits. This last feature will eliminate the rigidity of the interest-based system in its guarantees of principals and 'returns=interests' in isolation from the performance of real activities.
Askari (2012)	- The analysis has been based upon the following arguments: - The assertion that 'The Qur'ān prohibits debt-based contracts' and 'Islam offers a	- The absence of debt and leverage, financial failure is localized and prevented from infecting the entire financial system.'

Author (s)/ Publication year	Data and Method (s) of Analysis	Main Findings
	system that prohibits all debt.' - 'An IB is assumed to match maturities of deposits (liabilities) and investments (assets).' - Stability of the IFS is seen through the 'lens' of the instability of the conventional system. The analysis is based on 'debt prohibition or elimination and its associated characteristic 'risk-shifting' to 'equity and participatory financing' with 'risk-sharing' as its main instinct. Use of some recent financial turbulence, such as the US subprime crisis, as evidence for that. - Conventional banking is based on a fractional reserve system that creates money and encourages borrowing and leveraging. Assets and liabilities mismatch has become a chronic feature of such a system. - Proposals to reform CFS closer to the IFS are neither new nor alien in the West (e.g., the Chicago Plan and LPB).	- Commercial banks to restrict their mandates to two activities: (i) cash safekeeping (100% reserves against checking deposits), and (ii) investing client money in a mutual fund. - Full government monopoly in the issuance of currency. Commercial banks are barred from 'money creation. - The tax bias against equity finance must be removed if policymakers want to eliminate recurrence of financial crises.' - Policy makers must discourage excessive borrowing, leveraging, and risk-shifting and instead encourage risk-sharing and equity finance.
Shafique et al. (2012)	- The research is based on a descriptive framework by extracting important information and conclusions about IBs performance from various reports and studies during the recent financial crisis of 2008.	- Performance of IBs during the global financial crisis is better than conventional banks.' Thus, they are 'more stable'. - Risk in IBs is less than their conventional counterparts, because of their interest-free nature.' - Because of the global financial crisis there is increasing demand for the Islamic financial system in the Western world.' - It is proved from all reports, past records, famous authors and experts' views that there is less impact of global financial crises on the Islamic banking system.'
Chapra (2007a[13])	- This work reviews a number of financial crises and reasons behind them to determine the root cause or 'cause of all causes'.	- The fault line or 'the root cause' in the international financial system results from the lack of adequate market discipline because of the absence of explicit risk-sharing. - Greater reliance on equity financing is a prime remedy of the fault line in the interest-based FS, but debt financing should not be entirely ruled out, 'the share of equity has to be increased and that of debt is to be reduced substantially'. - The introduction of greater discipline in the financial system, which the prohibition of interest has the potential of ensuring, along with more effective regulation and supervision, should go a

(13) The paper appeared in July 2007; a date before the eruption of the crisis in August of the same year. As a result it has been counted among the pre-crisis studies as displayed in figure (3).

Author (s)/ Publication year	Data and Method (s) of Analysis	Main Findings
		long way in substantially reducing volatility in the financial market and promoting faster development.
Ali, S.S. (2007)	- The author utilizes the 'natural experiment' or a case study by examining the factors that led to the closure of one Islamic finance house in Turkey. - The author used the 'listing approach'; list all the plausible causes of bank failures identified in various other studies in the context of conventional banks and relate them to how, why, and to what extent they are relevant for Islamic banks. - Analyze the role of each of the 'listed factors' in the context of *Ihlas Finans*. - Provide some lessons for strengthening Islamic banks.	- The concentration of IBs' assets in fixed return *murābaḥah* contracts has exposed them to various risks leading to instability. However, they still retain the sharing feature on the deposits side which is a cushion for their stability. - The problem of *Ihlas Finans* was less likely to be insolvency, which was the case in many conventional banks, but liquidity crisis. - Capital Adequacy ratio in *Ihlas Finans* (5.39%) was less than other Special Finance Houses SFHs (7%), and much below the prudential measure of 8 per cent recommended by the Basel Committee. - Deterioration of the liquidity ratio of IFH from 4.22% in 1999 to 0.53% by the end of 2000 during the crisis. - Exchange rate shocks coupled with liquidity crunch and eroded depositor confidence in the banking system were among the external factors that precipitated a run on *Ihlas Finans* before it collapsed. - A weak regulatory system for SFHs and lack of official support also contributed to its collapse. - Weak internal management, imprudent financing within the group, and poor crisis management strategy are some of the differentiating factors. - Regulators need to have a clear understanding of the nature of Islamic banking.
Islamic Financial Services Board (IFSB) (2010)	- A type of policy-oriented exploration based on: Analysis of the essential features of IF, the theoretical composition of the balance sheet of a typical IB and their relevance to financial stability enhancement. - Examination of the current state of the industry and Islamic indices. - The existence of a Sharīʿah board 'adds another level of oversight which inherently safeguards against irresponsible practices'. - Discussion of eight building blocks 'to promote a resilient and efficient Islamic financial system'. 'When embraced in its entirety, these essential features of IF reduce the risk of financial instability.'	- The Islamic financial services industry has been in a relatively stronger position to weather the global financial crisis, demonstrating its robustness as a stable form of financial intermediation. - The inherent features of IF have the potential to serve as a basis to address several of the issues and challenges that have surfaced in the conventional financial system during the current crisis. - The inherent strength of IF derived from its key underlying principles; establishing a close link between the financial transactions and productive flows that will generate legitimate income and wealth. - The features and value proposition inherent in the Islamic financial model can have the potential to contribute to global financial and economic stability.

Author (s)/ Publication year	Data and Method (s) of Analysis	Main Findings
		- Recommendation for the establishment of an Islamic Financial Stability Forum.
IFSB, (2013)	- An initiative by the IFSB to engage with its stakeholders and the global IFSI on topics that fall within the operational mandate of the IFSB. The report covers issues relating to the stability of the IF industry (IFI). Among the topics covered: - Implications of the changing global financial infrastructure for the IFS. - Liquidity management and the development of lender of last resort facilities on a Sharīʿah-compliant basis. - Dialog with the Basel Committee on Banking Supervision to obtain recognition of the specificities of IF	- Liquidity risk management is seen as one of the most significant challenges for Islamic banking by the regulators in most jurisdictions. - Development of guiding principles for stress testing – for both individual IBs and supervisory authorities – which take into account specificities of IBs. - Preparing the ground for a comprehensive set of cross-sectoral prudential standards for IBs, capital markets, and insurance.

Table (2). Summary of the Findings of Empirical Studies.

Author (s)/ Publication Year	Sample	Method (s) of Analysis	Main Findings
Čihák at al. (2008)	- 77 Islamic Banks (IBs) and 397 Conventional Banks (CBs) in 20 countries during the period 1993-2004.	Z-score indicator	• Small IBs (with assets under US$ 1billion) were financially stronger than CBs of the same size; • Large IBs were less solid than CBs of the same size; • Small IBs are financially stronger than large IBs; • The market share of IBs does not have a significant impact on the financial strength of other banks.
Beck et al. (2010)	89 IBs and 397 CBs in 20 countries during the period 1995-2010.	Z-score indicator	• IBs seem more cost-effective than CBs in a broad cross-country sample; • CBs that operate in countries with a higher market share of IBs are more cost-effective but less stable.
Farook et al. (2010)	50 IBs and 150 CBs with a minimum of 5 years of data and a maximum of 15 years period 1991 - 2005 in 16 countries	Z-score indicator	• The negative association between profit distribution management and financial stability is inconclusive; • Fixed rate asset concentration is almost invariably associated with lower financial stability; • There is some support for a negative association between profit and loss asset concentration and financial stability.
Masood et al. (2011)	30 paramount IBs functioning in different countries of the world for a period from 1998 to 2008.	Z-score indicator	• Smaller IBs are more stable than larger IBs; • Large IBs have greater income diversity than smaller IBs
Ali, A. E. E. S. (2011)	Bank-level data of 39 fully fledged IBs in 17 selected countries.	Z-score indicator	• IBs are associated with higher credit risk, but with lower overall risk; • IBs are financially stable.
Ghassan et al. (2011) (in Arabic)	6 Banks in Saudi Arabia : 4 conventional and 2 Islamic, over the period 2005 to 2009	Z-score indicator	• Mixed results. There is no clear evidence of the superiority of IBs. Insignificant presence of IBs in the Saudi financial system does limit contribution to the stability of the whole system
Shahid et al. (2012)	6 IBs and 10 CBs in Pakistan during the period 2005-2010.	Z-score indicator	• Small IBs tend to be financially stronger than small CBs; • Large CBs tend to be financially stronger than large IBs; • Small IBs tend to be financially stronger than large IBs, which may reflect challenges of credit risk management in large IBs; • The market share of IBs had a significant impact on the financial strength of other banks.
Gamaginta et al. (2012)	12 Islamic banks and 71 conventional banks in Indonesia during the period 2004-2009.	Z-score indicator	• IBs, in general, have a lower degree of stability compared to CBs; • Small IBs have the same level of stability relative to small CBs; • During the crisis period of 2008-2009, IBs, and CBs tended to have

Author (s)/ Publication Year	Sample	Method (s) of Analysis	Main Findings
			the same relative degree of stability; • The stability of fully-fledged Islamic banks (BUS) is lower than Islamic business units (UUS).
Rajhi (2012)	467 CBs and 90 IBs for the period 2000-2008 in 16 countries: 6 Southeast Asian countries and 10 MENA countries	Z-scores indicator	• IBs had higher stability than CBs except for small IBs; • Credit risk and income diversity are the most common cause of insolvency for IBs; • Income diversification is a cause of insolvency for small and large IBs in Southeast Asian countries; • An increase in LIBOR leads to a decrease in z-scores in small IBs in Southeast Asian countries; • In Southeast Asian countries, large Islamic and conventional banks cannot coexist in the same system without crowding out effects in a competitive market.
Rahim et al. (2012)	17 Islamic and 21 commercial Malaysian banks from 2005-2010	Z-score and NPL as proxies for financial stability	• IBs are more stable than their conventional commercial counterparts.
Altaee et al. (2013)	Total observations 653 for 97 banks: 405 observations are for 55 CBs and 248 observations are for 42 IBs covering the period 2003 to 2010.	Z-score indicator	• There is no empirical evidence that supports the hypothesis that says 'there is a difference between the z-score of conventional banks in the Gulf Cooperation Council (GCC) countries and Islamic banks in the same region for all three periods'.
Bourkhis et al. (2013)	Matched sample of 34 Islamic IBs and 34 CBs from 16 countries	Z-score indicator	• No significant difference in terms of the effect of the financial crisis on the soundness of IBs and CBs.
Srairi (2013)	137 commercial banks (94 conventional and 43 Islamic banks) operating in ten MENA countries over the period 2005-2009	The ratio of non-performing loans to total loans (NPLOAN) and the Z-score	• The ownership structure is significant in explaining risk differences between banks. Results highlight the fact that banks with concentrated ownership have lower insolvency risk and lower asset risk; • Almost no differences related to ownership concentration when CBs and IBs analyzed separately; • Family-owned banks appear to assume lower risks. For this type of shareholder, the results suggest that family IBs have a lower level of credit risk compared to CBs. No differences were found between the two types of banks in terms of z-score; • For state-controlled banks, the results are in line with the view that government banks had greater credit risk than private banks. For this indicator, it was found that state IBs tend to be more stable than state CBs; • Overall IBs are as stable as CBs.
Boumediene et al. (2008)	14 IBs and 14 CBs in 9 countries over the period 2005 - 2009.	E-Garch and GJR-Garch	• IBs were at least partially immune to the subprime crisis, and that these banks were not subjected to the same risks as conventional

Author (s)/ Publication Year	Sample	Method (s) of Analysis	Main Findings
			banks.
Yusoff et al. (2009)	Malaysian banking system from the period 1983-2001	OLS Equations: • IBs sharing deposits equation. • CBs interest-based deposits equation	• Sharīʿah compliant deposits are more stable than their conventional equivalents.
Karwowski (2009)	Investigating the significance of Islamic banking in Malaysia for stability in the country's economy as a whole	A flow-of-funds approach similar to Minsky's approach to analysing the inherently unstable character of a financially developed and sophisticated capitalist economic system is applied to the (post-) modern consumption-led business cycle and financial (and asset) market.	Contrary to the claims of Islamic scholars, IBs channeling funds from companies to households play a destabilizing role in the economy as a whole. Credit granted to the household sector is used for housing purchases and, therefore, inflates this asset market, increasing the system's economic fragility and encouraging speculation. These trends, affecting the economy as a whole, are reflected by the IBs' balance sheets.
Hasan and Dridi (2010)	Bank-level data of 120 banks (90 conventional and 30 Islamic), in 8 countries, covering the period 2007−10.	Financial ratios: Four indicators were changes in (1) profitability; (2) bank lending; (3) bank assets; and (4) bank ratings.	• IBs have been affected differently than CBs; • In terms of profitability, IBs fared better than CBs in 2008; 'large IBs have fared better than small ones'. This was reversed in 2009 as the crisis hit the real economy; • IBs 'credit and asset growth performed better than did CBs in 2008–09. The growth was at least twice as high in IBs than in that of CBs; • IBs showed stronger resilience, on average, during the global financial crisis; • Factors related to IBs' business model helped contain the adverse impact on profitability in 2008, while weaknesses in risk-management practices in some IBs led to larger declines in profitability compared to CBs in 2009; • Adherence to Sharīʿah principles precluded IBs from financing or investing in the kind of instruments that have adversely affected their conventional competitors and triggered the global financial crisis.
Kassim (2010).	194 banks have been used in the study; 50 Islamic and 144 conventional.	• The study measures financial stability using three important indicators: • BS ROAV which is computed as the standard. • Deviation of ROA. • BS Tobin Q. which was calculated by equity by earnings. • Banks liquidity (BSLIQ).	• IBs are more capitalized than CBs; • IBs reported very small Non-performing assets (NPA); • GCC CBs have higher liquidity levels than IBs; • Consumer confidence levels in IBs are higher than CBs in this region which operates both banks in parallel.

Author (s)/ Publication Year	Sample	Method (s) of Analysis	Main Findings
Derbel et al. (2011)	Financial indexes of France, United States, Indonesia, and Saudi Arabia, covering the period 16/07/1997 - 15/12/2009.	VAR model	• The transmission of the current crisis is weak in the markets which are based on Islamic finance.
Zouaoui et al. (2011) (in Arabic)	4 GCC IBs (2 in UAE, 1 in Qatar, and 1 in SA) over the 2007-2009 period	Markowitz (Optimal portfolio theory)	• IBs are quite resilient to crises' shocks as indicated by the good performance of some indicators such as growth in profitability and the volume of provided credit.
Hidayat et al. (2012)	8 IBs in Bahrain from the period 2005-2010.	Financial ratios	• Islamic banking industry is not entirely crisis-proof; • Financial crisis does have an impact on the Islamic banking performance, particularly in Bahrain, but the effect comes after the crisis period.
Al-Ali et al. (2012)	10 CBs and 1 IB in Jordan over the period 2005 - 2010.	Garch, Egarch and GJR-Garch	• IB was more stable than CBs.
Zarrouk (2012)	Data covering 2005−09 for 20 IBs in 5 GCC countries	• The study focuses on an inter-temporal comparison of the performance of IBs before and after the global financial crisis in the GCC region. • The study uses 12 financial ratios to assess IBs' performance. The ratios have been grouped into four categories: (a) profitability; (b) liquidity; (c) risk and solvency; and (d) efficiency.	• IBs fared differently from country to country during the global financial crisis; • Factors related to the IF model helped to contain the adverse effect on performance in 2008. Weaknesses in risk management practices in some IBs led to a larger decline in performance in 2009. The performance of IBs in the UAE declined more than that in the other countries; • IBs loan growth was higher during the crisis; • Overall, IBs seemed to be 'relatively sound' during the crisis.

التمويل الإسلامي والاستقرار المالي: مراجعة الأدبيات

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المستخلص: تستعرض هذه الورقة مراجعة نقدية لأدبيات الاقتصاد والتمويل الإسلامي التي تناولت موضوع استقرار النظام المالي الإسلامي ومؤسساته مقارنة مع النظام المالي التقليدي القائم على الفائدة (الربا). تقدم الورقة تحليلاً لأربعين دراسة على مدى ثلاثين سنة الماضية (١٩٨٣-٢٠١٣م). وقد تم فيها مقارنة فترتين فرعيتين: ما قبل الأزمة المالية العالمية (أزمة الرهن العقاري الأمريكية)، وما بعدها. لقد طغى على فترة ما قبل الأزمة الدراسات النظرية، في حين طغت البحوث التجريبية على فترة ما بعد الأزمة. أظهرت النتائج أن الأزمة يبدو أنها تكون قد لعبت دورًا هامًا في إيلاء مزيد من الاهتمام لمسألة استقرار التمويل الإسلامي ومؤسساته؛ حيث إن خمسة وسبعين في المئة من الأدبيات المستعرضة أُجريت في فترة ما بعد الأزمة. فقد تم إصدار حوالي خمس دراسات سنوياً خلال الفترة ٢٠٠٨-٢٠١٣م، مقارنة بإجراء أقل من دراسة واحدة في السنة في الفترة التي قبلها. وأظهرت النتائج اختلافا كبيرًا بين النظرية والتطبيق في التمويل الإسلامي. تزعم الدراسات النظرية "تفوق" النظام المالي الإسلامي القائم – بشكل رئيس- على أدوات التمويل المبنية على المشاركة في تقاسم المغانم والمغارم، في حين تُظهر أن الدراسات التجريبية نتائج متباينة.

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