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Faisal Alqahtani (Kingdom of Saudi Arabia),
David G. Mayes (New Zealand)

THE GLOBAL FINANCIAL CRISIS AND ISLAMIC BANKING: THE DIRECT EXPOSURE TO THE CRISIS

Abstract

This paper theoretically discusses and reviews the main causes of the crisis, including discrimination, moral failure, poor governance, easy credit, imprudent lending, excessive debt and leverage, and regulation and supervision failure. The implications of the crisis have been reviewed, followed by a critical discussion on the lack of direct exposure to the crisis for Islamic banking, because most, if not all, of the practices and financial instruments that are believed to be responsible for the crisis are not permitted under Islamic banking principles

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Faisal Alqahtani, Ph.D., Assistant Professor of Finance, Taibah University, Al Madinah, Kingdom of Saudi Arabia.

David G. Mayes, Ph.D., Professor of Finance, University of Auckland, Auckland, New Zealand.

INTRODUCTION

The financial crisis that is widely believed to have been created by exploiting the low-income residents of the US spread rapidly to affect the rest of the world, sending the world into a deep financial depression that is considered to be the worst since the Great Depression of the 1930s (Dymski, 2013). This paper investigates one of the participants of the global financial system – the Islamic banking sector – which has been growing rapidly, reaching more than $1.5 trillion in assets and operating throughout the world. To date, there has not been as much research and investigation into this banking system as there has been into the traditional banking sector.

The objective of this paper is to review the main causes of the subprime crisis, the implications of the crisis, and to discuss the way the Islamic banking system survived the first phases of the crisis because of its lack of direct exposure to the toxic assets generated by the US banking system.

1. CAUSES OF THE CRISIS

An understanding of how the global financial crisis was created is needed in order to distinguish whether there were differences in the ways conventional and Islamic banks performed during the crisis. The Financial Crisis Inquiry Commission (FCIC) concluded that there were a number of reasons for the 2008 subprime financial crisis, including low interest rates, easy credit, scant regulation and toxic mortgages, which led to a full-blown crisis in the autumn of that year (see Appendix 1). Risky mortgages had been securitized, packaged and repackaged, and sold to investors around the world. When the 'subprime bubble' burst, there were billions of dollars of losses from mortgage-related securities, and this shocked financial markets and the financial institutions that were highly exposed to those mortgages. In addition, these losses were significantly magnified by the use of derivatives. The main causes of the crisis were not independent of one another, but were highly interrelated and difficult to separate.

1.1. Discrimination, moral failure and poor governance

It is argued that the origin of the subprime crisis is rooted in the idea of subprime lending itself, which is based on inequality, discrimination and exploitation. For many decades, low-income and immigrant communities were deprived from obtaining credit by a practice that was known as 'red lining', where red lines were drawn on maps of areas where mortgage lending was considered a high financial risk, often on a racially discriminatory basis (Galster & Godfrey, 2005; Rogers, 2013; Turner, Ross, Galster, & Yinger, 2002). Although this racial discrimination was no longer legal, it continued into the 21st century in the form of unfair and exploitative terms of credit for these communities. Banks and mortgage brokers targeted them with high-cost loans despite the fact that these targeted communities were the least able to bear this kind of lending (Bocian, Ernst, & Li, 2006; Bowdler, 2005; Cohen, 2013; Dymski, 2013) . The expansion of this kind of lending was facilitated by the use of innovative risk-shifting tools (such as securitization) and high-tech information tools, which led to an increase in lending to lower-income clients, whereas lending to middle- and upper-income clients was declining (Dymski, 2013). Likewise, Wilson (2009) argues that this kind of loan was one of the main causes of the global financial crisis. He characterizes 'subprime borrowers' as those borrowers who have previously had credit and have a low income, making it highly likely they will not be able to repay their mortgages. He adds that moralists question the validity of the high return concept, which justifies charging a high interest rate to low-income subprime borrowers, and a low rate to high-income, creditworthy borrowers (Wilson, 2009).

Another moral failure can be found at the bank level. The FCIC investigations revealed shocking examples of governance breakdowns and irresponsibility – for example, the managers of AIG ignored the terms and risks of 79 billion US dollars' worth of derivatives that were exposed mortgage-related assets. Managers hid their excessive leverage in derivative positions in off-balance sheet entities that were provided to the investing public (FCIC, 2011). Siddiqi (2009) believes that most causes of the crisis were embodied in a moral failure that resulted from conflicts of interest, stating:

"Financial institutions include banks, investment companies, and insurance companies, etc., managed by hired professionals. Those who govern financial conglomerates by virtue of owning enough shares have motives different from ordinary shareholders. Almost the entire population in developed countries is involved in supplying capital through purchase of stocks, bonds, insurance policies, pension funds, etc. While these 'principals' are interested in profits, they care about many other things too, among them stability, jobs, social justice, and anxiety free communities. Not so the hired managers who consider profit maximization to be their mission, as it earns them maximum bonus and continued employment. There are those amongst middlemen who earn fees. They earn more when transactions multiply. In an environment where no one cares about others, as every one is focused on his or her own interest, public interest is supposedly guarded by regulators" (p. 4).

Nobel Prize-winning economist Paul Samuelson warned of the consequences of the 'me, me, now, now, consume, consume generation' several years before the crisis took place (Iley & Lewis, 2013). Greenspan (2010) supports Siddiqi's (2009) view on the incentives of hired managers and their interests, which are not aligned with the shareholders' interests. He states that while the top executives of Bear Stearns and Lehman Brothers lost millions of dollars from the failure of their firms, none of them has filed for personal bankruptcy and their wealth has enabled them to maintain their previous standard of living (Greenspan, 2010).

1.2. Easy credit and imprudent lending

After the dot-com market crash and September 11 terrorist attacks, the interest rate in the US was reduced from 6.5% in 2000 to 1% in 2003, thus stimulating the US economy and making credit more accessible, enabling American consumers to increase their borrowing to unprecedented levels (Chang, 2011). Greenspan (2009), former chairperson of the US Federal Reserve, points out that the 'easy money' policy was one of the major causes of the crisis. Chapra (2009) suggests that imprudent lending was the result of three factors: 1) lack of adequate market discipline in the financial sector, resulting from risk shifting; 2) the 'mind-boggling' expansion of derivatives, specifically, credit default swaps; and 3) the 'too big to fail' concept, which falsely reassured major players in the financial sector that the central bank would rescue them and not allow them to collapse.

The FCIC (2011) added that 'there was an explosion in risky subprime lending and securitization' that financial institutions traded in, and they bought and sold mortgage securities without examining or caring about their quality. In some cases, institutions even knew that those securities were defective. Dymski (2013) suggests that mass securitization had changed the traditional model of financial institutions holding portfolios made of short- and long-term loans given to well-defined borrowers. Instead, a new model had been adopted that allowed financial institutions to originate and distribute loans, moving them from being interest-based to fee-based, and making them less inclined to carefully assess loan applications, thus leading to the subprime crisis. Ahmed (2009) also discusses this argument, saying that complex products used by financial institutions enabled them to transfer the risk of default to others, which resulted in the breakdown of the relationship between lender and borrower. This breakdown generated risks both before and after the contact. He states:

"As the loans were packaged and sold, there was little incentive to scrutinize the financial health and capabilities of the clients by loan originators before contracts were signed. This resulted in lowering the standards of due diligence, resulting in subprime lending. In the post-contract stage, the Master Servicer had no incentive to reschedule the loans in case of a default and instead took the easy way out of foreclosure" (p. 14).

Because of the 'originate and distribute' model, loose lending standards were encouraged (driven by a desire to obtain higher profits for an extended period) and this led to a risky lending environment that finally damaged the interests of both the borrowers and the lenders (Iley & Lewis, 2013). Bord and Santos (2014) and Keys, Mukherjee, Seru, and Vig (2010) empirically investigated the perforemance of loans that were generated by the same banks. They found that loans that were securitized performed worse than loans that were kept in the banks' portfolios – this can be seen as evidence of 'incentive effects'.

1.3. Excessive debt and leverage

FCIC (2011) states that 'too many financial firms acted recklessly, taking on too much risk, with too little capital and with too much dependence on short-term funding' (p. 18). By taking this excessive risk, financial institutions made enormous profits. For example, in 2007, major players in the financial sector such as the Lehman Brothers, Goldman Sachs, Bear Stearns and Morgan Stanley were operating with extremely thin capital. Further, most of these companies' borrowings were from the overnight market and needed to be renewed every day. An extreme case of leverage was that of government-sponsored enterprises Fannie Mae and Freddie Mac, which held a leverage ratio of 75 to 1 (FCIC, 2011). Greenspan (2010) states that in the period leading up to the subprime crisis, banks and financial institutions operated with a layer of capital that was too thin (with leverages as high as 20 to 30 times their tangible capital), with significant risk-underpricing of their increasingly complex products. Jean-Claude Trichet, president of the European Central Bank, has pointed out that 'a bubble is more likely to develop when investors and financial institutions can leverage their positions by investing borrowed funds' (Chapra, 2009, p. 13).

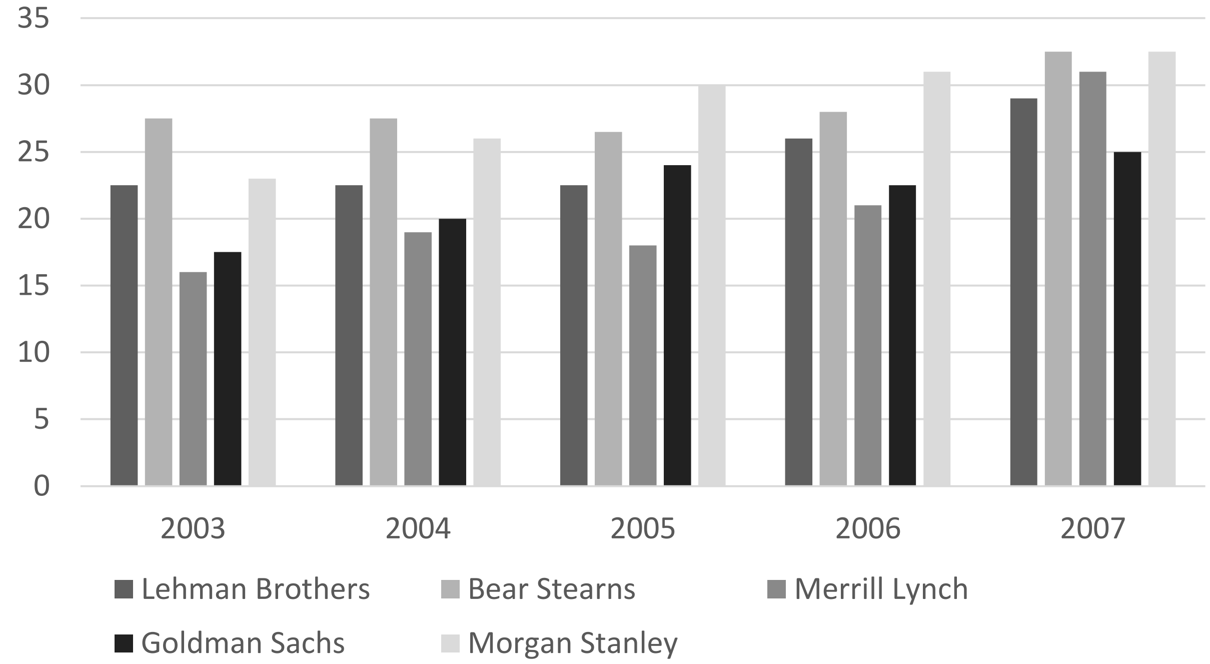

Figure 1. The leverage ratio of major investment banks from 2003 to 2007 (Winston Chang, 2011)

1.4. Regulation and supervision failure

The FCIC (2011) concludes that the Federal Reserve failed to stop the flow of toxic mortgages, which could have been achieved by setting prudent mortgage-lending standards when it was in a position to do so. Similarly, Kayed and Hassan (2011) argue that all the crisis causes were facilitated by inadequate and inappropriate government regulatory supervision. Chen (2010) argues that the shadow banking system (comprising institutions such as investment banks and hedge funds), which was highly exposed to toxic assets, played a significant role in the credit market despite not being subject to the same regulations as deposit-taking institutions such as commercial banks. Ahmed (2009) suggests that one of the reasons for the failure of government supervision was the dynamic and innovative nature of the financial sector. He points out that the public authorities needed to understand the new risks associated with these new instruments, and to make the appropriate legal and policy changes to deal with them. Because this did not happen during the period leading up to the subprime crisis, regulatory regimes became unable to fulfil their purpose efficiently, and when they tried to do it during the crisis, it was too late (Mayes, 2009a).

At the macroeconomic level, it has been noted that the global financial crisis invalidated the argument promoted by free-market advocates that 'markets are efficient on their own' and market forces are able to manage and correct market inefficiencies should they arise (Kayed & Hassan, 2011). Likewise, Dillman (2013) argues that the central assumption that drove policy decisions during the last three decades was that 'market does a better job than government would do on assessing risk', but it turned out that market did a poor job at all levels during the crisis.

2. IMPLICATIONS OF THE GLOBAL FINANCIAL CRISIS

This financial crisis is considered to be the biggest since the Great Depression of the 1930s. Professor Robert Merton, winner of a Nobel Prize, estimated the losses of the world economy ranged between three and four trillion dollars (Seidu, 2009).

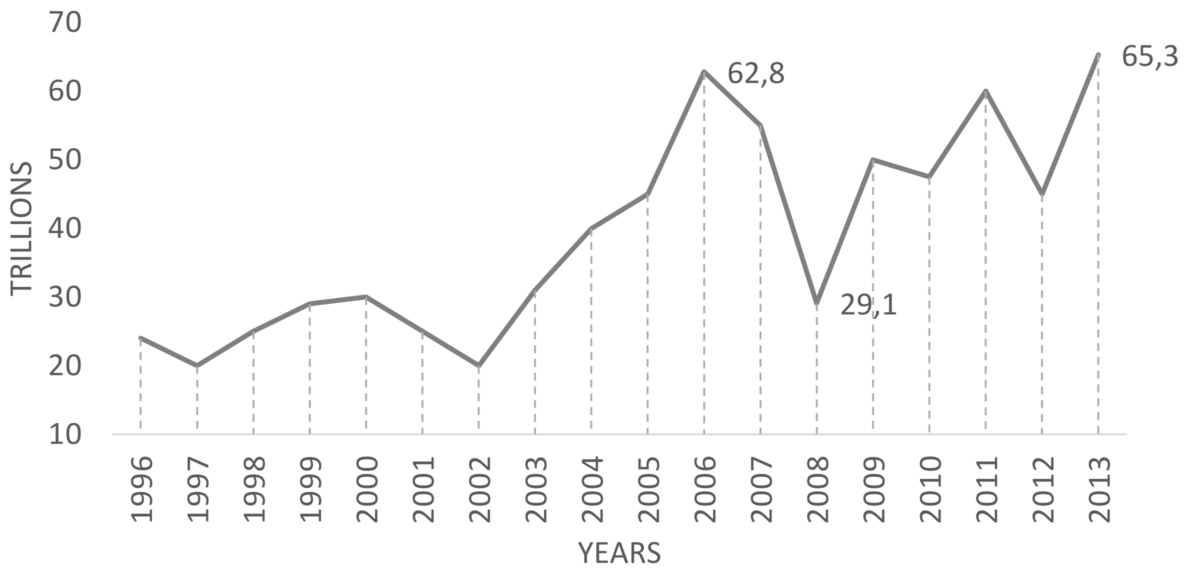

Figure 2. World stock market capitalisation from 1996 to 2013 (World Federation of Exchanges, 2014)

The impact of this was enormous not only in the financial sector, but also on every industry, either directly or indirectly. The effects included the following:

- Equity markets in the US and worldwide declined sharply.
- In the US alone, 485 banks went bankrupt, or were sold or nationalized, between 2007 and 2013 (FDIC, 2013), for example, Lehman Brothers, which had property assets in excess of 43 billion (Kayed & Hassan, 2011); Fannie Mae and Freddie Mac (FCIC, 2011); Northern Rock in the UK (Elliott, 2011); Bears Stearns, Merrill Lynch, and Countrywide (Longstaff, 2010).
- Central banks in countries around the world (e.g., Canada, Australia, China, Hong Kong, South Korea, Sweden and Saudi Arabia) reduced their key interest rates in order to avoid falling into recession (Kayed & Hassan, 2011).
- Some governments (e.g., Canada, Japan, South Korea, Austria, Germany, Netherlands, Norway, Saudi Arabia, Russia, Spain and Sweden) created urgent rescue packages from taxpayers' funds to support their financial systems (Seidu, 2009). These rescue packages and government guarantees negatively affected the solvency of these countries as a whole (Mayes, 2011), contributing to the sovereign debt crisis that followed.
- Twenty-nine out of 33 developed economies experienced recession during the period 2008 to 2009 (Douglas, Fatema, & Hawkins, 2010).
- The Icelandic economy, which depends heavily on the banking sector, faced a serious threat of national bankruptcy. The Icelandic government nationalised two of its banks, Glitnir and Landsbanki, in an attempt to stabilize its financial system (Mayes, 2009b), and was one of the first nations to require urgent financial aid from the International Monetary Fund (IMF) (Boyes, 2009).
- Instability and loss of confidence caused international markets and economies to decline. Governments intervened to assure markets, investors and depositors. Many governments and central banks (e.g., Australia, Hong Kong, Singapore, Austria, Belgium, Germany, Ireland and Spain) guaranteed bank deposits in an attempt to assure depositors (Seidu, 2009).

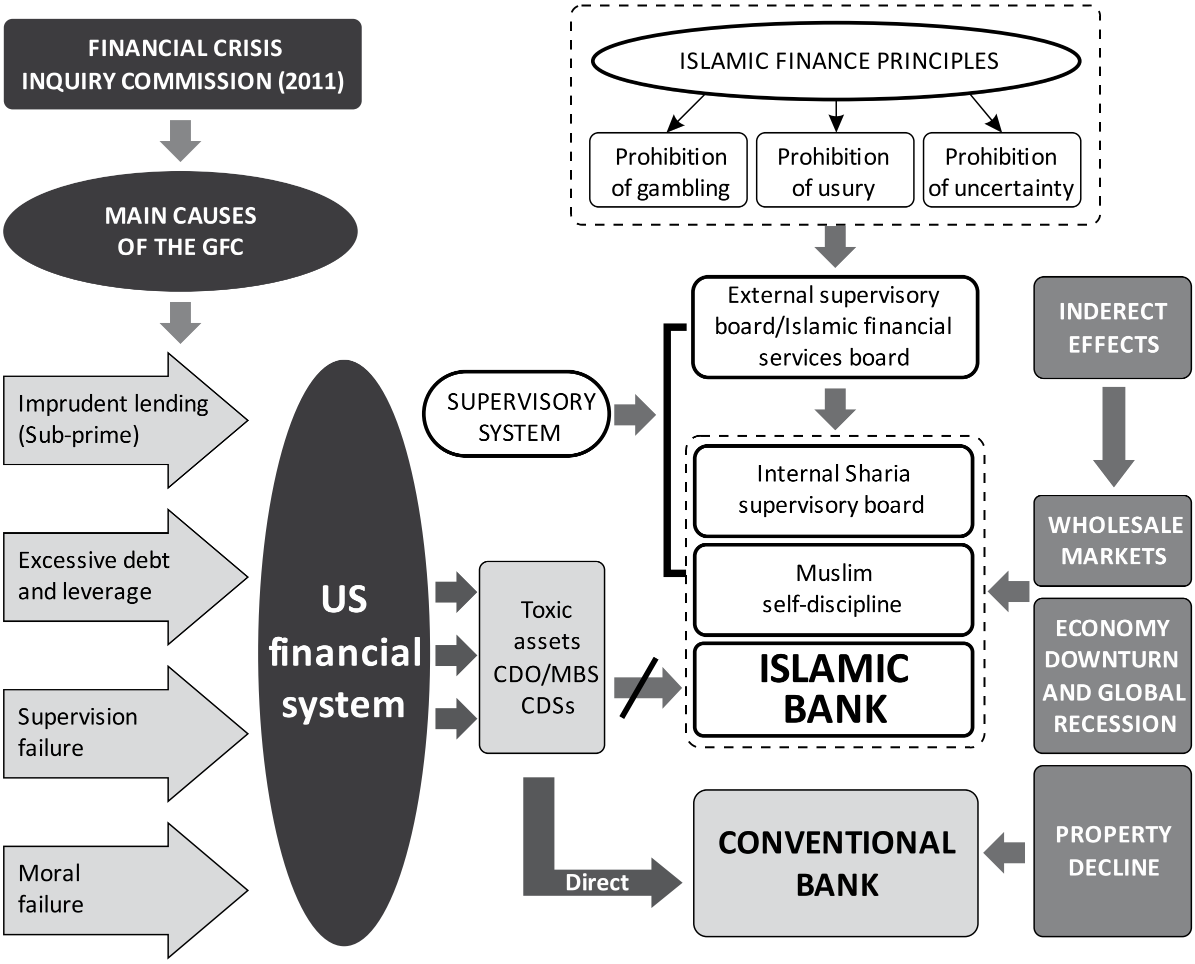

Figure 3. Intrinsic principles of the Islamic financial system potentially capable of safeguarding against financial crises

- Many institutional and individual investors lost their savings and investments such as pensions and retirement schemes.

- Sixty million people lost their jobs as a consequence of the worldwide recession (Douglas, Fatema, & Hawkins, 2010).

- Foreclosure has had a negative impact on the credit history of many low-income families, and this can make finding new jobs, renting houses or obtaining loans extremely difficult for them (Thomas, 2013).

- By one Federal Reserve estimate, the US lost an entire year's worth of economic activity (almost $14 trillion) during the period 2007 to 2009 (Grovum, 2013).

3. ISLAMIC BANKING AND THE GLOBAL FINANCIAL CRISIS

The performance of Islamic banking during the global financial crisis has been discussed by many banking experts, such as Ahmed (2009), Chapra (2009), Kayed and Hassan (2011), Khan (2009), Siddiqi (2009), Wilson (2009) and Alqahtani, Mayes, and Brown (2016). There is general agreement that Islamic finance principles would prevent Islamic financial institutions from being directly exposed to the crisis: most (if not all) of the practices and financial instruments such as mortgaged-backed securities (MBS), collateralized debt obligation (CDO) and credit default swaps (CDSs), which are believed to be responsible for the crisis, are not permitted under Islamic banking principles. In his article in the Financial Times, Andrew Wood (2009) stated that 'The Islamic finance industry has been relatively immune to the effects of US subprime problems'. Similarly, Warde (2012) believes that Islamic banks survived the first phases of the crisis because most of the cases and the practices that led to the crisis would not pass the Shariah boards of Islamic institutions. Conversely, conventional banks were the first to absorb the full effects of the crisis.

This has given advocates of Islamic finance the confidence to propose that Islamic banking is a viable alternative to conventional banking; for example, Chapra (2009) argues that adopting Islamic banking principles would minimize the severity and frequency of financial crises, due to the principles' avoidance of the major pitfalls of the traditional banking system. The basis of the arguments of these scholars is discussed below.

3.1. Prohibition of 'riba' (usury law)

Islam prohibits the receipt or payment of any pre-set fixed rate of return on money that is borrowed or lent. El-Gamal (2000) and Khan (2009) explain that this prohibition is because riba (interest) drives poor people deeper into poverty while creating more wealth for lenders, who do not carry the risk associated with doing business or any activity. Islam considers transactions based on interest to be unjust, unfair and morally unjustifiable (El-Gamal, 2000). It is worth noting that in the past, other religions such as Judaism and Christianity also prohibited the payment of interest (for more than 1,400 years in the case of Christianity (Lewis, 2007). Similarly, Hinduism and Buddhism considered the payment of interest to be immoral and unethical (Kayed & Hassan, 2011).

As an alternative to interest, Islam allows trade: 'God has permitted trade and has forbidden interest' (Qur'an, 2:275). Trade contracts can take the form of investment contracts such as musharaka and mudaraba, or debt-based contracts such as murabaha and tawarruq.

Table 1. Arabic terms used in this paper

Shariah	Islamic law
Musharaka	Partnership
Murabaha	Money management
Tawarruq	Monetization
Murabaha	Cost-plus or mark-up
Gharar	Excessive uncertainty
Misr	Gambling
Riba	Interest/usury
Halal	Legitimate
Sharia compliant	Complying with Islamic law

The first group of contracts, namely, investment instruments, allow the bank and the entrepreneur to bear the risk and share the profits (and losses) equally, which is termed 'profit-loss sharing' (PLS). Thus, trade is a partnership rather than the lender-borrower relationship found in the traditional banking sector (Chapra, 2009). Mirakhor and Zaidi (2007) believe that this kind of contract would introduce a higher degree of discipline into the financial system, because it would motivate financial institutions to gauge the risks more carefully and effectively monitor the use of funds by the entrepreneur. Incidentally and similarly, Greenspan (2010) argues that:

> "As partnerships, Lehman Brothers and Bear Stearns almost surely would not have gone away from their historically low leverages. Before incorporation, fearful of the joint and several liabilities to which general partnerships are subject, those entities shied away from virtually any risk they could avoid" (p. 232).

He adds that implementing an incentive structure of partnerships should be a goal in any future reform and suggests that banks should be required to issue some form of debt instruments that can be converted to equity when equity capital becomes impaired.

The second group of contracts, namely, debt-based contracts, are permitted under the following very strict conditions:

- Leased or sold assets must be tangible (real), which eliminates some negative aspects such as speculative transactions, which are considered gharar (excessive uncertainty) and also misr (gambling) (Chapra, 2009).

- The bank must own the asset before selling it; this means the financier will bear some risks in order to gain returns.

- Contracts must be genuine trades with the intention of giving and taking delivery – it is believed this condition would eliminate derivative and speculative trading (Chapra, 2009).

- Debt cannot be sold; consequently, the financier bears some of the risk associated with the transaction and thus is motivated to perform a careful evaluation of risk and reduce the unnecessary expansion of the value and volume of transactions (Ahmed, 2009; Chapra, 2009).

- It can be seen from the nature of Islamic banking contracts that the toxic assets that are considered to be the main causes of the global financial crisis do not comply with basic Islamic finance principles, as they are based on interest and debt-selling activity. Therefore, Islamic institutions are not allowed to issue or buy them.

3.2. Ethical practices

As already discussed, one of the major causes of the crisis were moral failings and unethical practices, which occurred over an extended period. According to Siddiqi (2009), these practices can be found in many forms, including lack of transparency and information asymmetry regarding the potential risk associated with transactions, as well as the opaque and complex 'innovative' instruments for transferring the risk of default from the financial institutions to the buyers of those instruments. As previously noted, Siddiqi explains that a moral failure is the product of the mismatch and conflict of interests between all parties in a transaction.

Siddiqi argues that under Islamic banking principles, it is not possible to undertake such practices for a number of reasons. First, the return and the risk of the business contract must be clearly and explicitly stated and well understood by all parties to the transaction. The bank is obligated to observe high standards of disclosure and transparency in dealing with its potential partners (stakeholders) (Kayed & Hassan, 2011). Second, Islamic banks are only allowed to deal in permissible products and services, which must be halal (legitimate) in accordance with Islamic principles. Thus, business activities in industries involving weapons production, alcohol, pork, interest-based financial instruments, indecent entertainment, maisir (gambling), gharar (uncertainty; see a more detailed definition later in this document) and tobacco are excluded (Alqahtani, 2012; Brown, Hassan, & Skully, 2007). Siddiqi (2009) argues that risk shifting is maisir due to its excessive gharar, which is prohibited in Islam. Gharar is defined as the sale of items whose existence or characteristics are not certain, due to their risky nature, which makes the trade similar to gambling. In modern financial transactions, the two areas where gharar is most obvious are insurance and financial derivatives, such as CDO and other derivative securities (El-Gamal, 2000). Because Islamic banks are not allowed to deal in these kinds of financial instruments, they would have been less exposed during the global financial crisis.

In traditional banking, a ban on risk shifting would solve the issue of incentive mismatch, because all parties in a transaction would gain if the contract successfully reached its end. This would create real wealth not only for the transaction parties, but also for society.

3.3. Supervision mechanism

The third argument is concerned with the regulation and supervision mechanism of Islamic banking, and how the principles of Islamic finance are followed strictly by the banking management at every level. This issue is a manifold according to Islamic banking principles (see Figure 4), starting with the person him/herself, and within the financial institution, and to some external standard-setting organizations.

3.3.1. Muslim self-discipline

Muslim self-discipline prohibits Muslims from being involved in any activities that might be fraudulent, exploitative, dishonest, ambiguous and/or haram (non-permissible) (Kayed & Hassan, 2011). It should be emphasized that these activities are also forbidden by other religions and ethical systems such as Christianity and Judaism, which prohibit any actions breaching the principles of fair dealing (Lewis,

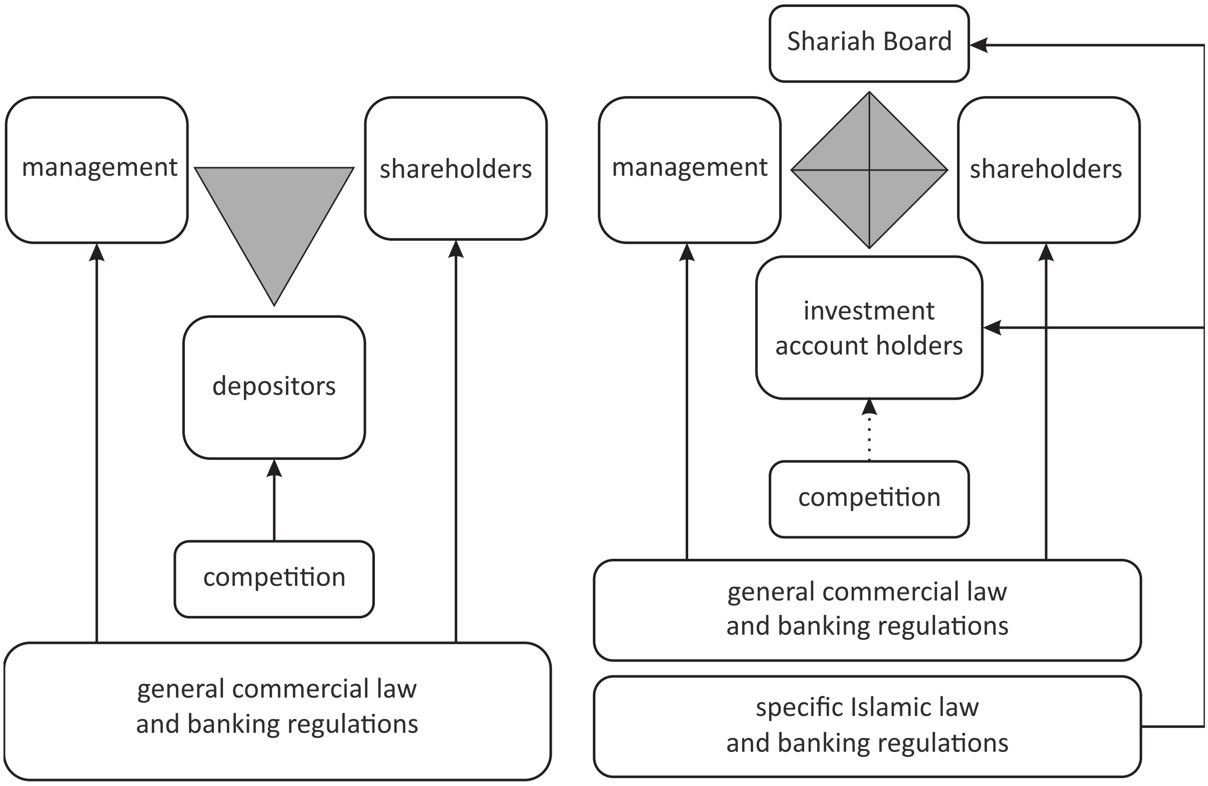

Figure 4. Comparing the governance structure of Islamic and conventional institutions (adapted from Nienhaus, 2007)

2013). However, the prohibition of riba (usury) particularly prevents Muslim from dealing in such activities in any form, whereas they are common practice in traditional banking.

3.3.2. *Sharia Supervisory Board (SSB)*

The Sharia Supervisory Board is a very important and active supervisory device that sits at the top of an Islamic financial company's governing structure (see Figure 4). Typically, unlike conventional banks, every Islamic bank has an SSB, consisting of Islamic banking experts, as an internal device of supervision to ensure that all bank practices, business dealings, investments and financial instruments comply with the principles of Islamic banking (Brown et al., 2007). This board, which has at least three members, is appointed by shareholders at the organization's annual meeting (AOFIFI, 2010a). The role of the SSB is not limited to merely giving advice on what is acceptable or not according to Islamic principles, it also monitors the implementation of their guidelines (Rider, 2012). At the end of the financial year, the SSB isB sues a report to the shareholders. This is considered an essential part of the bank's annual report and is highly valued by shareholders and depositors, as if the bank breaches Islamic principles, it might face Shariah compliance risk, which can lead to a serious loss of trust and credibility, triggering bank failure and causing systemic risk (Qattan, 2006).

Generally speaking, sound governance is needed for financial institutions, as failures put not only shareholders' equity at risk, but also that of other parties such as depositors, insurance companies, and the financial sector as a whole. In the Islamic banking context, this issue is more important than in conventional banks, because Islamic banks are exposed to higher and multiple types of risk (Nienhaus, 2007; Sundararajan & Errico, 2002). For example, deposit insurance is not allowed under Islamic finance principles, which means depositors' funds are very vulnerable to the decisions made by management. Also, the holders of investments are exposed to all the risks faced by shareholders but they do not have the right to monitor the management, which makes this additional dimension necessary to protect their interests (Nienhaus, 2007).

3.3.3. External Supervisory Boards

As well as the SSB, Islamic banks are also overseen by External Supervisory Boards such as the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), which is a non-for-profit organization that issues accounting, auditing, ethics, governance and Sharia standards for Islamic banks. At the time of writing, the AAOIF had issued a total of 88 standards – 48 on Shariah law, 26 on accounting, five on auditing, seven on governance and two on codes of ethics (AAOIFI, 2013). AAOIFI has over 200 institutional members from more than 40 nations, including central banks, regulatory authorities, and conventional banks offering Islamic services. Moreover, as part of regulatory requirements or Islamic institutions' internal guidelines, AAOIFI standards are followed in jurisdictions that offer Islamic banking services, including in the Middle East, South Asia, Asia Pacific, Africa, Central Asia, North America and Europe (AAOIFI, 2013).

Another organization is the Islamic Financial Services Board (IFSB), which is one of many professional and standard-setting organisations that works to keep abreast of the evolving needs of the fast-growing Islamic financial sector by issuing guidelines (21 standards to date) such as transparency and market discipline standards to enhance the soundness and stability of the Islamic financial services, for example, standards on Capital Adequacy, Liquidity Risk, Stress Testing, Supervisory Review Process and Islamic Insurance (IFSB, 2014). At the end of 2013, IFSB had 185 members operating in 45 nations. This research has used the definitions, standards and guidelines of these two organizations, as they are the largest and most influential bodies in the Islamic financial industry.

Overall, these three mechanisms of supervision ensure that unethical practices that breach the Islamic banking principles are avoided.

SUMMARY AND CONCLUSION

The subprime crisis offered a unique opportunity and a real test for the young and fast-growing Islamic banking system's stability and resilience. This paper has reviewed and discussed the main causes of the crisis, including discrimination, moral failure, poor governance, easy credit, imprudent lending, excessive debt and leverage, and regulation and supervision failure. The implications of the crisis have been reviewed, followed by a critical discussion on the lack of direct exposure to the crisis for Islamic banking, because most, if not all, of the practices and financial instruments that are believed to be responsible for the crisis are not permitted under Islamic banking principles.

Further empirical research is needed to confirm the findings of this paper, and that will require a well-structured sample consisting of both Islamic and conventional banks to compare different areas of their performance. More research is also needed to assess the indirect exposure of Islamic banks to the crisis through the global recession and how it might have affected the Islamic sector, taking into account all factors that might differentiate it from its counterparts in the conventional sector.

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APPENDIX 1.

Timeline of the subprime and financial crises

(Source: Federal Reserve of St. Louis, 2014)

Late 2006: The US housing markets lows after two years of increases in official interest rates. Delinquencies rise; awave of bankruptcies.

Feb 7, 2007: Europe's biggest bank, HSBC Holdings, blamed soured US subprime loans for its first-ever profit warning.

Apr 2, 2007: Subprime lender New Century Financial Corp.files for bankruptcy.

Jun 20, 2007: Two Bear Stearns funds sell $4 billion of assets to covered emptions and expected margin calls arising from subprime losses.

Jul 10, 2007: Standard & Poor's said it may cut ratings on some $12 billion of subprime debt.

Jul 17, 2007: Bear Stearns says two hedge funds with subprime exposure have very little value; credit spreads soar.

Jul 20, 2007: Home for eclosures soar 93% from the previous year.

Aug 9, 2007: BNP Paribas suspends redemptions in $2.2 billion of asset-backed funds; says it can not determine security values.

Sep 13, 2007: UK mortgage lender Northern Rock seeks financial support from the Bank of England; reports parks run by worried depositors.

Oct 1, 2007: Swiss bank UBS said it would write down $3.4 billion in its fixed-income portfolio; first quarterly loss in nine years.

Oct 30, 2007: Merrill Lynch ousts Chairman and Chief Executive Stan O' Neal after reporting biggest quarterly loss in company's history.

Nov 4, 2007: Citigroup announces a further $8-11 billion of subprime-related write-downs and losses. Charles Prince resigns as CEO.

Dec 12, 2007: Central banks coordinate the launch of the temporary Term Auction Facility (TAF) to address pressures in short-term funding markets.

Jan 1, 2008: Bank of America purchases Country wide Financial in an all-stock transaction.

Feb 13, 2008: President Bush signs the Economic Stimulus Act of 2008 into law.

Mar 11, 2008: Federal Reserve announces creation of Term Securities Lending Facility (TSLF).

Mar 16, 2008: Federal Reserve announces creation of Primary Dealer Credit Facility (PDCF).

Mar 24, 2008: JP Morgan acquires Bear Stearns in rescue partially financed by Federal Reserve Bank of New York.

Jun 5, 2008: Standard & Poor's announces down grade of monocline insurers AMBAC and MBIA.

Jul 11, 2008: Office of Thrift Supervision closes Indy Mac Bank, F.S.B.

Sep 7, 2008: Federal Housing Finance Agency places Fannie Mae and Freddie Mac in government conservator ship.

Sep 15, 2008: Bank of America announces purchase of Merrill Lynch; Lehman Brothers files Chapter 11 bankruptcy.

Sep 16, 2008: Federal Reserve authorizes lending up to $85 billion to AIG.

Sep 25, 2008: Office of Thrift Supervision closes Washington Mutual Bank.

Sep 29, 2008: Federal Deposit Insurance Corporation (FDIC) announces that Citigroup will purchase the banking operations of Wachovia Corp.

Oct 3, 2008: Congress passes Emergency Economic Stabilization Act establishing $700 billion The Troubled Asset Relief Program (TARP).

Nov 25, 2008: Federal Reserve Board announces creation of Term Asset-Backed Securities Lending Facility (TALF).

Dec 19, 2008: U.S. Treasury authorizes loans for General Motors and Chrysler from the TARP.