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## DERIVATIVES IN RELATIONSHIP WITH GLOBAL FINANCIAL CRISIS: WHAT IS ISLAM SAY?

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### ABSTRACT

*The subprime mortgage crisis in the United States had an impact on global finance. The cause of the global financial crisis among others is an expansion of monetary policy, market risk underestimation, corporate governance failures of the banking industry, and imbalance of income distribution. But the emergence of the global financial crisis is suspected as a specific phenomenon in which financial derivatives contribute to it (Juraj, 2011: 34). The methodology used by the authors is the study literature by exploring the relevant literature from both conventional and Islamic finance sources. It can be concluded that most of the derivative instruments in conventional finance are incompatible with the Islamic framework. In order to be compatible, Islam provides an alternative solution to this problem with the salam, istisna', al-'urbun, and istijrar contracts. Thus, the practices in financial derivative instruments had a significant impact on the global economic stability.*

**KEYWORDS:** Derivatives, Global Financial Crisis, Finance, Islamic Finance

### 1. INTRODUCTION

The subprime mortgage crisis in the United States brought its impact into a global financial crisis. A Researcher and Policymaker are discussing the causes of financial shocks at those time. They state that the global financial crisis is the result of complexity problems around the world. The cause of the global financial crisis that negatively impacts the world's countries is the result of, among others, expansion of monetary policy, underestimation of market risk, failure of corporate governance and failures of supervision and regulation of the banking industry, failure of corporate audits and income distribution. However,

the emergence of a global financial crisis suspected as a phenomenon. It says that financial derivatives contribute to it (Juraj, 2011).

The emergence of the use of financial derivatives as a means of risk control is due to the globalization of the economy and the integration of world finance as a result of the failure of the Bretton Woods System in fixing the value of money based on the gold reserves owned by a country. The emergence of a floating money system has created currency exchange rate risk and increased market volatility due to the fluctuations in the exchange rate that have encouraged the use of financial derivative instruments. The risks faced

by this fluctuating market are not only limited to exchange rate risk, but also commodity price movements, interest rates, share prices, and mutual relationships among them (Siahaan, 2008: 8-9). The existence of derivative instruments enables various participants to protect the value of their assets from the risk of losses due to deterioration of value only to the extent of tolerance it wants or planned. The derivative instrument also allows investors to filter the risks they have been able to bear. If the investors are not able to bear the risks, then it will be transferred to those who are eligible.

Financial derivative instruments are known to be very popular in conventional finance where they cross the principle in Islamic finance. The perspective among Islamic scholars and jurists about financial derivative instruments have clearly illustrated the differences. Many scholars agree that derivative instrument is restricted. Maliki and Hambali had viewed financial derivative instruments more liberal relatively. The purpose of this paper is adding knowledge to the agreement among Islamic scholars and jurists regarding its relationship with the global financial crisis in large countries forced us to do the exploration of further relevant conventional and Islamic literature.

## 2. OBJECTIVES

The paper aims to give relevant literature and expanding knowledge about financial derivatives in the relationship with a financial crisis in conventional and Islamic economic perspective.

## 3. METHODOLOGY

The method adopted by the authors of this study is literature reviews exploring from both conventional and Islamic financial literature that is expected to answer the questions and problems of a statement. The source of the data came from books, journals, working papers, conference proceedings, and relevant sites.

## 4. RESULTS

### 4.1 Financial Derivatives

Derivatives develop as a result of the innovation of financial products to respond the increases of complex needs. The discussion of this paper was limited to the four mainly derivative instruments called forward, futures, options, and swaps. The next paragraph will describe briefly about the definition of financial derivatives before the further discussion of the four main instruments.

Derivatives are the collective name used for a broad class of financial instruments that derive their value from other financial instruments (known as the underlying), events or conditions. On the other words, derivatives are financial instruments that its characteristics and value depend upon the characteristics and value of an underlying asset, usually commodities, bonds, equities or currencies (Juraj, 2011). While John C. Hull defined as a financial instrument whose value depends on the

values of other, more basic underlying variables. Derivatives are also known as contingent claims, and these two terms are used interchangeably throughout the book. Very often the variables underlying derivatives are the prices of traded securities (Hull, 1997:1). Derivatives are different from traditional financial instruments. Derivatives are financial devices derived from stocks, bonds, commodities, or various indexes such as JCI, LQ45, S & P500, Nikkei, Hangseng, etc. (Siahaan, 2008:10). It can be concluded that some basic components of a financial instrument which can be called as a financial derivative when it derived from the underlying assets, tradable financial instrument and aimed to transfer risk from one holder to another.

Derivative trading is carried out in two types of markets, which are exchanged on organized and over-the-counter markets (Prabha et al., 2014: 9). Special derivatives with important features traded by clearing houses as an intermediary to reduce the risks. Over-the-counter (OTC) derivatives are negotiated and adjusted privately to the specifications of the involved parties. Derivatives grouped according to nature and assets used as the parent, such as stocks, bonds, commodities, and indices. Derivatives can also be grouped on forwards contracts, futures contracts, options contracts, swap contracts or a combination of multiple contracts.

Unlike futures contracts, forwards contracts are the simplest derivative contracts. The definition of forwards contracts is the same as the meaning of futures contracts. Forward contracts are the earliest form of derivative contracts whereby two transacting parties will gain perfection from their future transactions at a prescribed price today. When the contract of an agreement is to be agreed upon, the price of the asset is chosen and determined so that the value of forwards contracts is zero, meaning that it does not require the cost to take long (buy) or short (sell) positions. However, in the future, it may change its value to be positive or negative depending on the price movement of the traded asset.

Futures contracts are agreements to sell certain assets in a given time at certain prices in the future (Siahaan, 2008: 12) and Hull (1997: 3). Futures contracts as derivative instruments traded on exchange markets in various countries of the world. Futures exchange provides a mechanism for people who want to buy or sell traded assets and traded amongst them in the future. Trading futures contracts are accompanied by standard features as both parties involved (buyers and sellers) do not have to know each other in contrast to forwards contracts. Another difference is the delivery date not clearly specified in the futures contract agreement. It is said will be delivered in a given month. Sellers (who choose short or sell positions)

have the right to specify a date during the delivery period to send the goods. Contracts in different months delivery time are usually traded at one time (Hull, 1997: 4). The contracts mention a number of assets to be sent, futures price offered, and a possible limit on amount or futures price changes.

Options contracts are contracts that guarantee the rights owner but not the obligation to buy (a call option) or sell (a put option) financial instruments at a certain price within a certain time (Prabha et al., 2014: 20). Option contracts were divided basically into two types, call option as a rights to buy and put option as a rights to sell. The call option holder has the right to buy assets at a price on a given date in the future while the put option holder has the right to sell (Siahaan, 2008: 13). The price states in the contract called a strike or exercise price, and the date called a maturity date.

Swaps contracts are an agreement between two parties (companies) to exchange cash flow in a certain period (during a certain period) in the future. The agreement specifies the date of cash payment and how to calculate the amount of cash that will be paid by each party. The calculation usually has been considered future value, interest rate, currency exchange rate, and other relevant variables (Siahaan, 2008: 13). The most commonly traded swap types are interest-rate swaps. Such transactions involve the exchange of a series of payments with a fixed interest rate for one set of payments at a variable rate of interest. Similarly to forwards contracts, swaps are traded over-the-counter (OTC).

We often hear the use of financial derivative instruments associated with speculation but its growth and extensive use in conventional finance provide benefits for business or corporate activities is a testimony that can not be ignored by the public. The discussion about benefits and economic role of these financial derivatives as risk transfer management, price discovery, transaction integrity, and reducing transaction costs are still in the center among experts. The most important economic function of derivatives is a market risk transfer instrument due to drastic changes in asset prices or changes in the portfolio of indecent assets by the parties who want to avoid (hedgers) to the parties who are willing and more able to control (speculators).

For the bank, risk management means protecting the value of its assets from interest rate changes by using interest rate derivatives that may decrease the probability of bankruptcy (Diamond 1984 in Prabha et al., 2014: 33). The Diamond's theory is further supported by several empirical studies conducted by Brewer, Minton, and Moser (2000) as well as Brewer, Jackson, and Moser (2001) which conclude banks that hedge using derivative instruments are more efficient than

unhedged ones. As for non-financial institutions, the use of derivatives is allegedly related to cost of financial distress and risk (Smith and Stulz, 1985; Tufano, 1996; Bartram, Brown, and Fehle, 2009); Taxes (Graham and Rogers, 2002; Donohoe, 2012); investment-related issues (Froot et al 1993, Chiorean, Donohoe, and Sougiannis, 2012); smoothing income (Barton, 2001); and conflicts that arise with principal-agents associated with managerial incentives (Mayers and Smith, 1987; Smith and Stulz, 1985) (Prabha et al., 2014: 34-35). The transfer of risks associated with the above-mentioned factors has implications not only for companies or banks but also for the economy as a whole.

The second benefit is price discovery. In this case, the point is the occurrence process of an asset price that someone is willing to buy and sell the asset at that price (Siahaan, 2008: 15). The futures market prices are considered by the public as a value of a commodity (asset) supply and demand. In other words, the information of futures market prices can be used competitively by all involved parties. Since the prices are published in financial media all of them (producer, trader, and other market participants) know the information about a price expected in the market. However, those pricing process may be negatively affected by a small number of dominated market participants (Siahaan, 2008: 16).

Some conditions in order buyers and sellers confident to use prices on futures exchange based on the law of supply and demand. These conditions as follows (UNCTAD, 1993):

- a. Contracts traded on a futures exchange shall be in accordance with the physical condition of an underlying asset and the reasonable limit if market when price distortions occur in the market.
- b. A Futures market of traded commodities needs a trust that guaranteed by the clearing house and the governing system. It both increasing the cost of market use and forcing users to obey and comply standards financial systems and reporting.
- c. Futures and options contracts should be traded in liquid markets, meaning that market users can easily find their opponents transact. Futures and options contracts should be traded in liquid markets where the users can easily find each other to make transactions. But a true price-forming mechanism can occur only when the number of hedgers and speculators is balanced equally.
- d. Trading futures and options should be transparent, limiting the possibility of market distortions.

Further benefits of financial derivative instruments are transaction integrity. It can be said that in a legal and undeveloped commercial

infrastructure economy futures commodity able to play an important role as mediators to the creditors, thus stimulating the exchange in the formation of market-based prices. The existence of the derivative market has made financial transactions more reliable (Siahaan, 2008: 17). The financial derivative is also related to reducing transaction costs by cutting transaction costs through the small spreads of selling and buying activities. As a result, the spot market with derivative instruments is liquid than without derivatives (Prabha et al. 2014: 42).

#### 4.2 Financial Derivative and the Relationship with Global Financial Crisis

The financial crisis accompanied with the economic recession has occurred in the history of the world economy. A Periodic crisis arises as part of the dominance of the financial system. America was at the center of the financial crisis which embraced liberalization of the economy, the proliferation of computer and communications technology that would contribute to economic growth and prosperity. Globalization contributes the accumulation of wealth only to a small number of individuals and creates an economic imbalance. The United States government implements policies to reduce the imbalances in the economic system that lead to the financial crisis. The cause of the financial crisis itself no other than human's behavior named by the greed (human's obsessions for money or resources). And in general, people spend more money than they have on money, thus creating large amounts of debt at risk of financial system stability.

The following are the most frequent causes of the financial crisis (Hassan and Kayed, 2009: 36-37):

1. Complex derivatives and excessive using of financial institutions in the United States were encouraging some leading financial institutions in bankruptcy. It caused by poor quality of mortgages in securities packages with the risk of being sold to intermediaries. These mortgage-based securities are sold to investors and traded through intermediate markets to extend new loans and add more money.
2. Incompatibility assets of liabilities result in bank's inability to renew its short-term debt used to finance long-term investments in mortgage securities thereby triggering bank runs.
3. Regulatory failures. The excessive regulation requires banks to raise capital when their risk is high resulting in a decrease in their lending.
4. Fraud, corruption, and greed. Economic greed becomes the basis of ethical considerations of investment. Depositors draw the money through misleading claims, manipulation, and

create financial assets without real economic activity.

5. The outstanding money. Unprotected banknotes by real commodities such as gold, causing inflation.

We summarize and simplify the causes of the financial crisis as mentioned above into several important points: (1) deregulation of financial markets, (2) innovation of financial products as a result of the rapid development of computer technology (financial derivative instruments), (3) excessive executive compensation, (4) low interest rates, (5) subprime loans, primarily mortgages (mortgages), and (6) speculation. Here we will limit the discussion on point (2) about one of the causes of the financial crisis is the innovation of financial products which in this case refers to the financial derivative instruments.

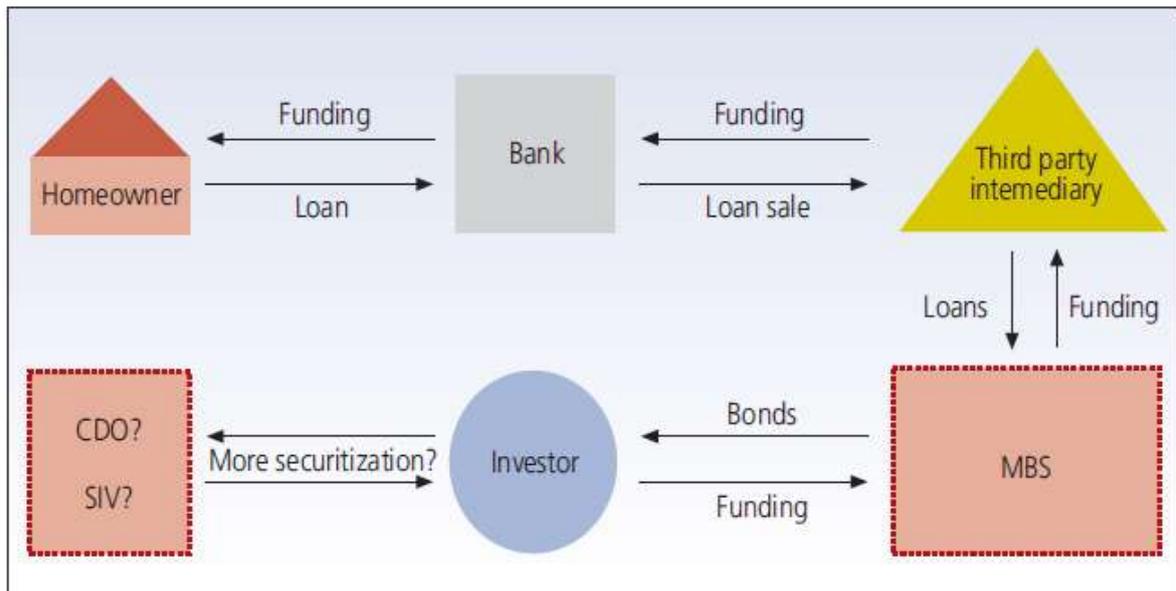
The US Financial Crisis Inquiry Commission (FCIC) found that OTC derivatives as one of the eight main causes of the crisis. Credit default swaps are the most causing crisis (Prabha et al., 2014: 21). The global financial crisis is associated with an increase in the volume of financial derivative transactions which involves excessive uncertainty. They facilitate the market risks management relating to prices, exchange rates, and others. Derivatives are often called zero-sum games which mean if I get a profit, then you spend for the benefits that I get. It is empirically determined that for a particular investor class the availability of derivatives invites speculative activities. Derivatives are the result of innovative financial products that have very complex structures. Among the many reasons why such innovation products cause financial crises are partly because of the securitization and hedge funds or funds used for hedging activities in which both become part of financial derivative instruments. "Securitization is a sophisticated process of financial engineering that allows global investment to be spread out and separated into multiple income streams to reduce risk" (Anonymous, 2012:143)

Securitization is a sophisticated process of financial engineering that allows global investment to spread and separate into multiple revenue streams to reduce risk. For example, a bank lends to customers they know, and the bank is responsible for any risks that may arise because of the lending. This means bankers make loans only to individuals or companies that they trust can repay the loan. With securitization, the risk attached to risky lending can be borne by the lender bank to another party that has no direct relationship with the borrower's customer. For example, the case of securitized home loans will increase the amount of money available borrowed by the borrower to buy a house. These led to an increase in house prices and prevailing interest rates to become unpredictable until the issue of the housing crisis

occurred. Neither is the case with particularly credit derivatives and derivatives in general.

There are two kinds of widely known as credit derivatives: credit default swaps (CDS) and collateralized debt obligations (CDO). Credit default swaps are usually used by insurance companies. Life insurance companies use CDS as an asset, the parties involved in it agree that one will pay the other if the third party can not afford the loan. Credit default swaps are used to transfer credit risk from a lender bank. The main problem of this transaction is the lack of information transparency and not well regulated. At its peak, CDS caused confusion and triggered excessive risk.

Collateralized debt obligations are linked to mortgage providers. On a global scale, the total issuance of CDOs in 2006 has exceeded USD 500 billion, whereas in 2004 the total issuance of these derivatives is still at a level of around USD 150 billion. Significant increases occurred over the years to the global financial crisis beginning with the mortgage crisis and the collapse of major financial institutions in the United States due to default. CDS and CDO are designed and securitized involving third parties both government and private institutions (Anonymous, 2012: 143). Below is a figure of the funding process on mortgage credits:



Notes: MBS means mortgage-backed security. CDO means collateralized debt obligation. SIV means structured investment vehicle. Sumber: The Federal Reserve Bank of Chicago, Chicago Fed Letter : "The role of securitization in mortgage lending", November 2007

Source: Bank Indonesia (2009:43)

**Figure 1. Chart of Mortgage Credit Financing Process**

Based on figure 1 begins with the subprime mortgage that started the global financial crisis in the US. A subprime mortgage is a term for the mortgage was given to debtors classified as a high-risk credit. Subprime mortgages are then transformed into traded securities in global financial markets. In the first phase, it is securitized into mortgage-backed securities (MBS). MBS securitization in modern financial systems is a common thing. Even in 2006, the number of secured mortgages into MBS accounted for nearly 60% of all outstanding mortgages (Bank Indonesia 2009: 42). In this securitization process, a third party often combines some mortgages sold to investors. The third party is also acting as the guarantor of default risk. In the second stage, it is securitized again into CDO and SIV (Structures Investment Vehicles) to make it hard to trace who's the parties is actually involved in this borrowing. This condition actually triggers an excessive risk

aversion behavior from market participants who immediately create a very severe liquidity drought in the financial markets that ultimately pave the way to the financial crisis.

Similarly to securitization instrument, hedge funds grows rapidly. The calculation says more than USD 1.3 trillion before the 2008-2009 financial crisis. Hedge funds are closely related to the investment funds used for hedging strategies using an arbitrage technique that involves simultaneous purchasing at low prices in one market and selling at high prices in other markets to make a profit.

### 4.3 Legal Aspects of Derivatives

Islamic law has a standard in every financial transaction that is halal or accepted among the Muslim community. All financial instruments and financial transactions must be free from the five main elements: (1) usury, (2) corruption, (3) maisir, (4) uncertainty (gharar), and lack of information (Kahn, 1996). As stated in the

Muslim holy Qur'an that the five elements are prohibited in Religion. As for the verses of the Qur'an which prohibits a lot of them QS. 2:219 & 275 as follow:

*They ask you about wine and gambling. Say, "In them is great sin and [yet, some] benefit for people. But their sin is greater than their benefit." And they ask you what they should spend. Say, "The excess [beyond needs]." Thus Allah makes clear to you the verses [of revelation] that you might give thought. (QS. 2:219)*

*Those who consume interest cannot stand [on the Day of Resurrection] except as one stands who is being beaten by Satan into insanity. That is because they say, "Trade is [just] like interest." But Allah has permitted trade and has forbidden interest. So whoever has received an admonition from his Lord and desists may have what is past, and his affair rests with Allah. But whoever returns to [dealing in interest or usury] - those are the companions of the Fire; they will abide eternally therein. (QS. 2:275).*

A forward contract is one type of transaction that is forbidden because it is against the principles of Sharia. A forward contract is a sale and purchase of debt in which there is an element of usury while the transaction (sale and purchase) is done before the due date. According to the rule of fiqh and reaffirmed by Qur'an 2:282 states, "Any debt receivables that bring additional payments are usury." However, forward contracts can be accepted in Islamic law when it adjusted in salam, istisna or bai al-sifah contract. A Definition of debt that has been prohibited by the Prophet is the price not paid at the time of the contract (Mansuri, 2005: 204; Ali, 2008: 166; Utsmani, 2002: 134 in Ehsan, 2012). The reason behind the permissibility of Salam contract is to meet the instant needs of the sellers. Maliki scholars believe that the payment of the Salam contract can not be delayed more than three days while the shipment is not less than fifteen days. While Hanafi and Hambali mention that the delivery time of goods must be at least one month from the agreement date. The Salam contract is invalid If the goods are sent less than one month or one month from the date of the agreement. The seller in Salam contract does not have a sales object but undertakes to hold it in the future. In the other words, the promise to sell goods by the seller with payment is the sales object of Salam contract. However, Islamic law requires mentioning the quantity, quality, and date of delivery of goods determined at the time of contract (Kamali 2002: 132-133 in Ehsan, 2012).

Dali and Ahmad (2005) cited in Ehsan (2012) concluded that futures contracts are acceptable in Sharia if it complies with the salam contract. However, current futures and options practice is not in accordance with sharia law. Khan (2000) in Ehsan (2012) he acknowledges that

conventional futures markets structures (exchange, market monitoring, and clearing-house) are required in a salam-based futures market. Some scholars like Sami Hamoud regard the futures contract as a permissible exchange of promises on all sales except for the sale of the currency. Some other experts such as Shaikh Mustafa al-Zarqa argue that futures are not congruent with descriptions of Salam contracts or deferred sales (Bai al-mu'ajjal). He further explains in this contract one of the counter values is present at the time of the contract while on futures, both are suspended for the future.

Hasan (1986), Sulaiman (1992), and Usmani (1996) cited in Bacha (1999) agree to reject the options as a financial instrument in accordance with Islamic law. According to Ahmad Muhayuddin Hasan, the maturity between the three days in options as khiyar-al-shart is unacceptable. He also states that the profit gain by the buyers is more than the seller which is demonstrating oppression and injustice. Abu Sulayman thought that options are acceptable when corresponding to Bai 'al-urbun but later, conclude as a forbidden financial instrument because of irrespectively of underlying assets and the unjust seller's premiums implementation. That argument was supported by Mufti Taqi Usmani that taking commissions and trading options is unjustified, but the options contract can only be regarded as a promise. Obaidullah (1998) states trading options is unjustified in Sharia because of its speculation elements over price movements that can be taken as a profit between buying and selling price. Conventional swaps are invalid because of an interest-based transaction. The principal foundations are money to be a commodity, and one of the parties sell it for making a profit. This conventional principle is unacceptable to the Islamic framework which treats money as a medium of exchange (Ehsan, 2012).

## 5. SUGGESTION

Basically, all financial transactions in the form of buying and selling in Islam are allowed until there is a law that prohibits them. It can be concluded that in order the existing financial derivative instruments must be in accordance with the principles of sharia following the instructions below:

1. use to solve the original hedging demand related to ownership (qabd) in a particular asset or business;
2. deny the suspension of contractual obligations without actual and direct transfer of physical assets as unconditional sales objects;
3. maintain retained payments for contractual use of assets but override provisions aimed at generating unilateral benefits from temporary price changes from underlying assets beyond the scope of business risk sharing;

4. avoids activities deemed to be similar to speculation (gharar) through the explanation of the characteristics of the object and/or the outcome of shipment and other prohibited (sinful) sinful activities;
5. derivatives must also work without exploitation in an effort to create a distributive justice system in the consideration of the public interest (maslahah).

## 6. CONCLUSION

The writing of this paper aims to obtain information related to financial derivative instruments as well as its relationship with the global financial crisis that swept the world as completely as possible. The method adopted by the authors is the study of literature exploring various literature from both conventional and Islamic financial that is expected to answer the questions and problems of a statement.

The result of this paper discloses that most of the financial derivative instruments are incompatible with the Islamic framework. Furthermore, these instruments are closely related to the practice of interest known as usury, uncertainty transactions related to quality, quantity, price, and delivery time, debt trading, corruption, oppression, and injustice of Islamic norms. In order to comply with the Islamic framework, financial derivatives in must adopt a structure of the salam, istisna', and urban contracts.

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