In The Name of Allah

Research, Development and Islamic Studies

Islamic Futures and Options Contracts

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Abstract

Islamic derivatives including Islamic futures and options contracts are financial instruments which are designed and adjusted to be compliant with Shariah principles. These are new contracts which did not exist at the time of Prophet Muhammad (P. B. U. H.).

A futures contract is an agreement (not transaction) in which both parties of the contract are obliged to make cash transaction on a particular date in the future with volume and price of the asset (which is compliant with Shariah) specified. Using the commitment against commitment contract, the seller undertakes the sell of a specific amount of asset against a specific amount of money and the buyer undertakes to buy it. Both parties, according to "the article added to the contract" (Shart-u zimn-al-aqd), "pay a specified amount of money to the broker as margin". They, according to the article added to the contract, give the broker "the power of attorney" (Wakalah) to transfer a part of each party's margin to the other party (based on Wadiah contract) and the other party has the "permission to use" (Ibaha al-tasarruf) the said property to be settled on maturity date or when leaving the contract.

An option contract is an agreement between the option grantor and the holder of call or put options of the underlying asset. Here, the option holder shall have the right to buy or sell a certain asset (financial or real) at specified price and up to a specified date in future. But, the option grantor commits to sell or buy the same asset. Other definitions are as the same as futures contracts except that in options contracts, only option grantor should pay margin.

According to the nature of the options and futures contracts, those are new and independent contracts; they can be correct and permissible contracts if all general provisions of the contracts, such as prohibition of "having an asset on a non – Shariah – permissible manner", prohibition of loss, prohibition of Gharar and prohibition of usury are fully observed. Also according to the fact that in options (call and put) and futures contracts all these provisions are observed, such contracts would be permissible.

Key Words: Islamic derivatives, Islamic futures contracts, Islamic options contracts.

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1. Islamic Futures contracts

1.1. Forward contracts (Definition)

A forward contract is an agreement between both parties of the contract to make a transaction on a particular date in the future with volume and price of the commodity specified. In this contract, both parties may compose the contract on the basis of their own acquaintances and requirements. Since a forward contract is not a standard contract it may be signed for all types of assets according to opinions of both parties. Only people with good credit can use forward contracts. Also this kind of derivative is executed in investment banks and there is no secondary market.

1.2. Types of Forward contracts

Forward contracts are executed on the basis of the underlying asset. So, in terms of the underlying asset, we have different types of forward contracts:

- Forward Rate on Exchange Rate (FX Forwards),
- Forward Rate Agreements (FRAs),
- Forward Contracts on Securities,
- Forward Contracts on Commodities.

1.3. Forward Restrictions

Since forward contracts are signed directly between buyer and seller, some restrictions may be found to increase the risk of signing such contracts and prevent it to become a commonly used agreement.

Thus, forward contracts are usually signed between financial institutions, industrial companies and reputable banks. Forward contracts are issued by investment banks.

1.4. Futures Contracts (Definition)

A futures contract is the standardized form of forward contracts. In this contract, future transaction (both delivery and payment) is committed and price and all details of the contract would be fully specified on the date of agreement.

A futures contract which is traded in futures market is executed by a clearing house as an intermediary between buyer and seller. However, regulations of futures exchange are so developed to protect market participants.

1.5. Differences between Futures and Forward Contracts

Futures contracts are exchange-traded **,**while forwards are traded over-the-counter. Thus futures contracts are standardized and face an exchange, while forward contracts are customized and face non-exchange counterparty. Futures contracts are margined ,while forward contracts are not. Thus futures contracts have significantly less credit risk, and have different funding.

The followings should be specified in detail in the contracts. Usually, based on the rules and regulations, exchanges determine these items for any contract and all of the participants should be aware of these terms and conditions and also should be aware of the risk of the contracts by signing the risk statement.

- Volume of commodity,
- Quality of commodity,

- Maturity month,
- Delivery conditions,
- Delivery date and place,
- Minimum amount of daily price movements,
- Permissible limit of daily price movements,
- Time and date of transactions.
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1.6. History of Futures market

Here is a brief review of futures markets history:

- **1730: Osaka**, (Rice transaction center[3])
- **1848: CBOT** (Chicago Board of Trade)
  Quality & quantity standardization of the grains
- **1874: CPE** (Chicago Produce Exchange)
  Butter, Eggs, poultry and other perishable agricultural products
- **1898: CBEB** (Chicago Butter & Egg Board)
  Withdrew of dealers from CPE to CBEB (1919 CME)
- **1972: CME** (Chicago Mercantile Exchange)
  Transactions of foreign currencies commenced
- **1975: CME** (Chicago Mercantile Exchange)
  Transactions of Interest Rate Futures commenced
- **1982: KCBT** (Kansas City Board of Trade)
  Transactions of S&P 500 Index futures commenced

1.7. Definition of Islamic Futures

A model for futures contracts in compliance with shariah rules and principles, presented as follows:

Futures contract is a commitment for executing a cash transaction in the future and would be studied in two assumptions as follows:

1. Buy and sell with the intention to deliver the particular asset,
2. Buy and sell without the intention to deliver the particular asset.

   Islamic futures contract is based on the first assumption and it is supposed that both parties have the intention to trade in real asset with a specific quality on a specific date.

However, a group of investors who have entered this particular market may not have any need to the assets or prefer to make cash settlement and find what really need in the spot market. Actually, this would be more sensible on physical assets. Suppose that the place of consumption is about 700 kilometers far from the nearest futures market warehouse. You would probably prefer to make cash settlement in futures markets and provide your required commodity from a near spot market. So, there would also be cash settlement in the Islamic futures market and each cash settlement is not a form of superficially transaction. But to prevent any harmful superficial transactions the total volume of the issued contracts (short position) must be compliant with the real asset market to prevent

[3] In 1716, Cho-gomai transaction was introduced and recognized by the government in 1730, which is said to be the origin of futures transactions in Japan.

any kind of speculation and the supervisory body of the futures market is responsible for controlling.

Transactions with intention to deliver the particular commodity would be in three different cases, as follows. The followings are so explained with a particular view to the commodities futures market but could be applied to any other Shariah compatible assets, such as stocks.

1. A kind of Bay' is occurred at the time of signing the contract and both parties actually make a real buy and sell, but delivery of the asset and payment of the price will be in future. Producer sells his future product, which is fully specified in terms of material, model, volume, date of delivery, and other specifications against a specific amount of money which is fully specified in terms of date, place and quality of payment. Purchaser also buys the commodity with these conditions.
2. Producer sells his "commitment to sell" of a specified amount of his future product, which is prescribed in terms of material, model, date of delivery against a specified amount of money (usually a small percentage of the commodity price). Purchaser also buys the commitment of that producer against the payment of that particular amount of money.
3. Producer undertakes the selling of a specified amount of his future product, which is fully specified in terms of material model, date of delivery and other specifications against a specified amount of money which is specified in terms of date, place and quality of payment. Purchaser also undertakes the buying of such commodity on that particular price and date of maturity.

1.8. Jurisprudential Considerations for Models:

Problem with the first case:

In this transaction, if the whole money be in the future, there would be a kind of kali bi-al-kali sale (selling in which both commodity and money are transferred in the future), and if a part of money be in the future, there would be some sort of buy/sell on Salam-basis in which the whole money has not been paid. Both assumptions have jurisprudential problems.

Problem with the second case:

Problem occurs when the "commitment to sell" stands as mabi', which is something to be sold, and would not be permissible in most jurisprudents' opinions because they believe that mabi' (something to be sold) should be a tangible object and "commitment to sell" is not amongst sensible objects.

1.9. A favorite model for Islamic Futures contracts

Using the commitment against commitment contract, while the seller undertakes to sell a specific amount of commodity against a specific amount of money and the buyer undertakes to buy it. Here, there would be no doubt of akl al-mal bil-batil and each party has accepted a particular commitment. This commitment could be transferred to the third person(s) in a secondary market.

1.10. Futures markets operational mechanism

Clearing houses

All transactions in a futures market are executed through the clearing houses. These institutions have different functions. The most important function is making both parties to guarantee the execution of transaction.

A clearing house is an intermediary between a person who undertakes to buy and a person who undertakes to sell futures to remove counterparty risks.

Paying margin

Investors in futures market pay a particular amount of money as deposit or margin or initial deposit to the clearing house to decrease the default risk.

Example: Two futures contracts to buy 200 ounces of gold (100 ounces each) have been signed on 5 June. Maturity date of this contract is the end of September. When signing this contract, the future price of gold is $800 per ounce. Futures exchange has determined a margin equal to %10 of the volume of contract.

However, the minimum amount of margin retained would be equal to a specific percent of the initial margin (e.g. 75%).

1.11. Margin mechanism

If two investors directly agree to trade an asset on a specified price in future, they will encounter a few problems. For example, one of these two may regret and fail to execute the transaction in a manner that there would be no default risk margin in futures contracts.

In case of any increase in futures price, a part of the seller's margin account would be transferred to the buyer's and in case of any decrease in futures price, a part of the buyer's margin account would be transferred to the seller's.

In a few markets, the one who has benefited from the price movements is permitted to take a part of the margin.

In the other markets, participants are permitted to do so if they want to leave the market.

The one who has lost a part of his margin to a specified limit (maintenance margin) due to price movements is bound to complete his own account.

The one who leaves the market receives his final margin (which would be higher or lower than his own initial margin) from his broker and the substitute would pay an amount equal to the initial margin and becomes the new party to the contract.

1.12. Jurisprudential Consideration

Transferring the margin from one party's account to the other's against the futures price fluctuation causes the doubt of "having an asset on a non-Shariah permissible" (akl al-mal bil-batil). Because a sum of money is transferred without something is existed in exchange for that money. However, there are models to correct this particular issue.

Margin in Islamic Futures Contracts

1. Both parties, according to "the article added to the contract" (Shart-u zimn-al-aqd), "pay a specified amount of money to the broker as margin". Broker records changes of margin account on the basis of changes of futures prices. The margin of each party would be left in his ownership until the maturity date or until a party decides to leave the contract. In the case of leaving the contract, he receives the final margin (which would be higher or lower than his own initial margin). So, balance of margin account which will be received, is equal to selling price and it is not "the case of having an asset on a non-Shariah – permissible manner" (akl al-mal bil-batil).

2. Both parties, according to “the article added to the contract”, undertake, in addition to what was explained in the previous approach, lend (qard) to the other party, sum of money on – account, to be settled on maturity date or when leaving the contract.
3. Both parties, according to the article added to the contract, in addition to what was explained in the previous approach, give the broker “the power of attorney” (Wakalah) to transfer a part of each party’s margin to the other party and the other party has the “permission to use” (Ibaha al-tasarruf) the said property to be settled on maturity date or when leaving the contract.

   The first approach is of no jurisprudential problem and is applicable. In the case something more than the first approach is required (both parties are able to benefit daily from price fluctuations), it is also possible to use the third approach.

1.13. Trading instrument

Commodities as underling assets

Futures contracts could be designed for all kinds of assets in conventional markets. However, Islamic futures contracts could be defined on those assets which are tradable in compliance with shariah principles, such as:

- Metals,
- Energy products (Crude oil and others),
- Agricultural products,
- Precious metals,
- Minerals,
- Currency futures.

1.14. Dealers in Futures Markets

Dealers of the futures markets are as follows:

1. Hedgers: (Those who try to decrease the risk of price fluctuations),
2. Speculators: (Dealers who seek for profit by accepting risk and executing of frequent transactions),
3. Arbitrageurs: (They try to get profit by entering two or more markets simultaneously).

Futures markets are primarily established for the hedgers but the presence of speculators and arbitrageurs helps the liquidity of the markets. In other words, in the absence of these two market participants, hedgers may not be able to cover their own risks efficiently. In the Islamic futures market, these two groups will have their own activities but the market regulator has a particular duty to supervise such activities and prevent any kind of harmful speculation. Limited number of trades, limited price fluctuation, and limited number of contracts issued on a certain asset would be amongst the market regulator's means of supervision.

1.15. Closing a position

There are two ways to leave a futures contract:

- Physical delivery
- Cash settlement

Most futures contracts (98%) will not be finished in physical delivery because most investors close their positions before the date of physical delivery.

To deliver or take delivery of commodities under conditions of futures contracts is usually difficult and in some cases quite expensive.

A hedger usually prefers to close his position and buy and sell properties in spot markets. Closing a position means to enter a new transaction and opening a position is in contrast with the previous one.

1.16. Possibility of Fraud in Futures Markets

Long position in futures contracts and hoarding of assets (Corner the market):

Suppose an investor group takes a huge long futures position and tries to exercise some control over the supply of the underlying commodity. The investor group does not close out its position until maturity date, thus, there may be more futures contracts than the amount of commodity available for delivery. As the result, those investors with short position find it difficult the physical delivery of the commodity and fail to close their position so cash and future prices increase incredibly.

1.17. Operational limits in futures contracts

Limits in daily price movements

Official exchanges usually prescribe a particular limit for daily price movements in order to prevent any extreme fluctuations and harmful speculation. Example:

- ± 10% for wheat, cotton, gold, index, dollar.
- ± 2% for interest rate contracts

Speculative position limits

Speculation position limit means the maximum number of futures which speculators could open. For example, in lumber futures traded in CME the limit is 1,000 contracts, in which the maximum number in each maturity month is 300 contracts. This limit is to prevent the excessive impact of speculators on the whole market

Example: Absolute positions limit (1,000 contracts, 20,000 currencies) for all maturities:

Percentage position limit (10%)

The seller's ability to deliver:

Regulations should be so enacted that one in long position be able to deliver the specified commodity.

This would help:

1. Prevent the paper contracts to increase incredibly against the real (market)
2. Those who have entered the market with the intention to take physical delivery at commodities could be assured of receiving their commodities on maturity date.

1.18. Leverage and Price Discovery

One of the main characteristics of the futures markets is that those investors who may trade in the spot market, in order to future consume (sell) and cover the risk of price increase (decrease), could make a similar trade in the futures market by paying a small portion of the whole price (initial margin). So, there would be no irregular demand increase and people buy the commodity at the time of consumption.

A building constructor needs 1,000 tons of steel bars with a maturity of 6 months. The price of steel bars is 7,800 IRRs[4] per kg, now he would have two ways to prevent the loss due to steel bars price increase:

Paying a sum of 7,800 million IRRs to buy steel bars NOW and holding them until consumption.

Opening a long position by paying only 5% (390 million IRRs) as margin

2. Islamic Option Contracts

As in a futures market both parties have undertaken to make the trade, there would be a probability for a real loss at the end for those who have entered the market with the intent to cover the risks. For example, someone intends to cover the risk of copper price increase. Now, the spot price for this particular asset is 1500 USD / ton and the futures price for the next 6 months is 1750 USD / ton. If the spot price will be 1600 USD / ton on due date, the buyer would make a loss on this deal. In options contracts, the buyer has the option to buy, so he/she can refer to the seller and buy the commodity or buy it from the spot market. Here, if the futures contract is replaced by an option contract, the buyer would not execute his/her option and buys the required commodity from the real market.

The element of option can be found in a few financial instruments, including:

- ✓ Convertible bonds in which the holder, if he wishes, can convert them into shares,
- ✓ Repo stocks,
- ✓ Callable bonds in which bonds may be redeemed by the issuer on specified dates.

2.1. Definition of Options Contracts

An option contract is an agreement between the option grantor and the holder of call or put options of the underlying asset. Here, the option holder shall have the right to buy or sell a certain asset (financial or real) at specified price and up to a specified date in the future. So, option holder has the right to choose, not obligation to trade. Payment of the margin in options is just done by the short position and there is no need for the long position to pay any margin. Indeed, there should be a default only by the short position.

2.2. Profit (and loss) of option

Call option is a contract that gives the holder the right to buy a contract quantity of the underlying asset from the writer, at a specified price up to a specified date.

Example (exercises / not exercises / strike price)

Suppose that you have received the call of stocks of the company X, at the strike price of 5,000 IRRs[5] for March 20, against the payment of 200 IRR. The spot price, when signing the contract is 4,500 IRR:

- First case: the market price on March 20 is 4,000 IRRs – Not exercise;
- Second case: the market price on March 20 is 6,000 IRRs – Exercise.

Suppose that you have received a call of the stock A for next 12 Months. The Current Price of this stock in the exchange is 5,000. The strike price is 6,000 and call option price is 200. So, you will have the right to exercise your option at next 12 months.

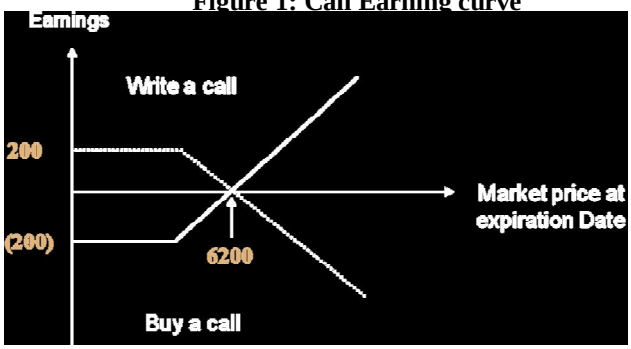
[4] Iranian Rials (IRRs)
[5] IRRs (IRR)

Table 1: Comparison between options and futures contracts with assumed stock price on maturity

Stock Price on Maturity	Strike Price	Call Price	Call Profit/Loss	Exercise/Not exercise	Futures Profit/Loss
5,000	6,000	200	-200	Not exercise	-1,000
5,500	6,000	200	-200	Not exercise	-500
5,800	6,000	200	-200	Not exercise	-
6,000	6,000	200	-200	Indifference	0
6,200	6,000	200	0	exercise/ Breakeven point	200
6,500	6,000	200	300	exercise	500
7,000	6,000	200	800	exercise	1,000

As it can be seen in this table, in options contracts the loss would be at most equal to the options price and profit would be equal to the futures contract minus options price. Profit and loss are higher in futures contracts. When a higher price is prescribed for the future, it is suggested to sign a futures contract and if the price movement in the future is ambiguous, options are suggested.

Figure 1: Call Earning curve



Put option is a contract that gives the holder the right to sell a certain quantity of the underlying on a specified date.

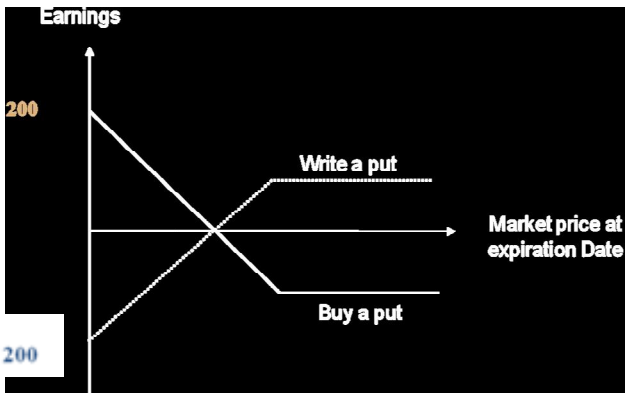
Example (Exercise/not exercise/strike price):

Suppose that you have received a put of stocks of company X, at the strike price of 5,000 IRRs for March 20, against the payment of 200 IRRs. The strike price, when signing the contract is, 4,500 IRRs.

First case: the real price on March 20 is 4000 IRRs – Exercise;

Second case: the real price on March 20 is 6,000 IRRs – Not

Figure 2: Put earning curve



exercise.

Suppose that you have received a put of a certain stock with the strike price of 5,500 price units against the payment of 200 price unit as the option for next 5 months.

2.3. Applications of options

- ✓ Financial (Risk hedging)
- ✓ Speculation for maximizing the benefit and return in the period of price movements.
- ✓ Arbitrage, or attempting to profit from price differences of identical or similar financial instruments, on different markets,
- ✓ Making profit by writing of options.
- ✓

2.4. Positions

As there are two types of option contracts, namely as call option and put option, and each contract has two parties (seller and buyer), there would be four typical option contracts.

- ✓ Long position of a call
- ✓ Long position of a put
- ✓ Short position of a call
- ✓ Short position of a put

2.5. European / American option

American option can be exercised at any time between the purchase date and the expiration date.

European option (option to exercise on maturity date) can only be exercised on the date of expiration.

2.6. Hedging (Stock Purchase)

Financial manager of the company A has bought a certain amount of stocks by a part of his funds and has got short position in an option contract to cover the risk of price decrease of stocks because he needs fund for a part of the company's development plan on a date in next six months. A total available fund is 2,000,000 IRRs which goes to buy 2,000 shares of stock of the company. The price of each share is equal to 100 IRRs and for buying of the put of a share a sum of 0.5 price unit has been spent. Also strike price on expiration date, which is nearly six months later, is (strike price is 120 IRRs per share and option price is 0.5 IRRs per share).

A) Suppose that the market price on expiration date is 130 IRRs. Now, profit (or loss) of a put is calculated as follows:

Since the strike price is below the market price, investor will relinquish his right and sell his shares in the market with higher price. Thus, the loss will be equal to the put price: (0.5 × 20.000= 10,000)

B) Suppose that the market price on expiration date is 110 IRRs. Now, profit (or loss) of the put is calculated as follows: since the strike price is above the market price, investor will exercise his right and sell his shares at a price above the market price.

2.7. Hedging (write an option)

A person has sold stock futures with the value of 500 IRRs for the next months. So, he also buys a call of stock for the next eight months to cover the risk of futures. In this case, the strike price of the option is 470 IRRs and the option price is 30 IRRs.

If the stock price in next eight months goes up to 520 IRRs, calculate the profit (or loss) of the investor.

Now, if the stock price goes down to 400 IRRs at expiration date, how much the profit (or loss) of the call option will be?

Table 2: Profit of loss in case A & B

Profit of call	Profit and loss in case A	Profit and loss in case B
Option price (deducted)	520-470-50	0
Profit or loss of call	(30)	(30)
Profit or loss of futures	20	(30)
Total profit loss	(20)	40
Profit of call	0	10

So, there would be no loss in this strategy. Different combinations of option contracts could be designed. For example, the investor who purchases a stock in the spot market would be in a high risk position and make a great loss after a fall in prices. Here, the investor should buy a put option in derivatives market beside his spot trade. Also, the stock seller must buy a call option of the same stock in order to not be in loss in case of any price increase.

2.8. Islamic Option Contract

Option contract is a kind of commitment. In this contract, the short position has the commitment to sell and the long position has the right to buy. So, no transaction is carried out at the time of signing the contract. The payment of margin is also similar to futures but in option, margin is not paid to the long position, thus there exists less shariah doubt. The benefit for the long position is just because of the option to buy.

2.9. Jurisprudential Questions about Options Contracts

1- An option does not have any financial value until the contract is signed by the two parties. How does it receive financial value after the contract is signed by the two parties?

Answer: Although different forms of buy or sell, which are the natural rights of each person, are amongst the rules of Shariah and do not have any financial value, but when someone undertakes to carry out a specific function, it will commonly receive a financial value and become tradable.

2- In an option contract, what the price stands against, and what is transferred to the grantor.

Answer: Option contracts (call and put) are some sorts of commitment in which the writer undertakes to, at the will of the holder, buy or sell at a specified price and gets a sum

of money which is called the option price, against his commitment. In the other words, the option holder buys another commitment to execute a legal action of buy or sell. Thus, the option contract will be an independent contract.

3- What is the nature of an option contract? Is Bay`, Insurance, Araboon, or on independent contract?

Some Definitions:

Bay` means buy and sell, or changing ownership of the asset against a specified return.

Araboon means prepayment and in jurisprudential definition, it is a payment to the seller by the buyer upon the condition that if he buys the goods, it would be as a part of the price; but if he does not buy the goods, the money goes to the seller. This is called Bay' al-araboon, which is not permissible in Islamic jurisprudence.

Insurance is a promise of compensation for specific potential future losses against periodic payments. In exchange for payments from the insured (called premiums), the insurer agrees to pay the policy holder a sum of money upon the occurrence of a specific event.

Answer: According to the nature of the option contract, which is a new and independent contract, it can be a correct and permissible contract if all general provisions of the contracts, such as prohibition of "having an asset on a non – Shariah –permissible manner", prohibition of loss, prohibition of Gharar (excessive uncertainty), and prohibition of usury are fully observed. Also according to the fact that in option contracts (call and put) all these provisions are observed such contracts would be permissible.

After a commitment by the writer (grantor) and receiving the specified payment, the holder will have the right to execute his/her call or put option on expiration date or relinquish his/her right or sell it to someone else. So, all next trades on options are some sorts of buy or sell of the right.

2.10. Important

Enacting of executive bylaws and guidelines should be carried out with a particular concern about preventing superficial and irregular transactions which causes such transactions be cancelled and makes the whole economic system work properly.

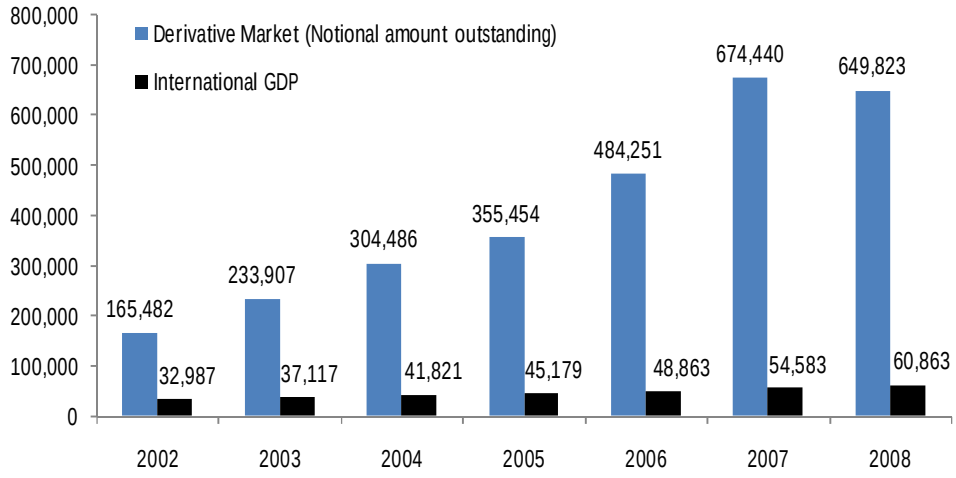
3. Facts and figures of derivative market

One of the most important issues in the Islamic transactions is the absence of what are called superficial and paper transactions. Islamic principles are to control the financial market and prevent the overgrowth of the financial market beside the real market. In other words, Islamic principles attempt to make the financial market serve for the real market and prevent the financial market stand at the center of all attentions in the economic system. This will help the macro economy and having an economic stability with no financial crisis.

The following table shows how the world derivatives market, including exchange –traded and OTC–traded, has been developed in comparison with the international GDP. This is an example of the consequences of paper transactions and overrating of the financial market which can be resulted in crisis.

However we are not to describe the said issue as the only reason of any financial crisis but it can provide, beside all other reasons, a particular space for that situation. This is the duty of the regulatory body of the derivatives market to supervise and make a balance between the volumes of trades in both markets.

Figure 3: Comparison of real market (International GDP) and Derivatives Markets (US Million $)



Source: www.bis.org, www.worldbank.org

4. Conclusion

Futures and options, as two hedging instruments, are widely applied in the financial market. As a futures contract is a kind of commitment to buy and commitment to sell and designed according to a contract in which all details are fully described, it is concerned as a new contract just like options in which the short position has a commitment to sell with a certain price in future and the long position has the right to execute the contract. The process of transfer in margin account is so designed that there would be no doubt of akl al-mal bil-batil. In futures contracts, both parties are bound to pay the margin but in options only the short position in which a likely default is apparent is bound to pay the sum.

Thus, an Islamic derivatives market, including futures and options on permissible assets, can be designed with no jurisprudential problems. But, what is so important is the role of the regulator to prevent this market to not surpass the real market.

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