

The Relationship between Overcoming New Investors' Fear in Investing in Derivatives in Stock Markets; And Revitalizing Stock Markets to Support Economies in the GCC

Ahmad Adel Mostafa*

Latest studies made in the GCC on publics' personal investments showed that publics prefer to invest their money in investment channels that are either they understand, or risk free. The most common used one is Private Deposits with Banks. In 2006, it was recorded that investments in stock markets versus Private Deposits were \$87260.9 Million in stock markets to \$369850.4 Million in banks' Private deposits. In the GCC, for the years 2004, 2005, 2006; out of 10 commoners, as an average, only two agreed to invest in stock markets. Understanding types of markets and derivative instruments used in the stock exchange is not as hard as people think. In fact, the most common used ones will be presented in a simple way in this study. Assumptions and conclusion are included in the study showing the financial impact if potential investors transfer & invest a small share, only small share, of their money in derivative markets instead of only placing their money in Private Deposits, that is, an 'Idle-Money' situation.

Field of Research: Management

1. Introduction

Recent studies showed that most of new investors/public does not know how to invest their money. Instead, they get involved into investments and projects that they know nothing about which increases the possibility of their loss, or they deposit their money in banks in the form of Private Deposits, which allows them to get a small amount of interest added to their deposits (profit), compared to the value which they have deposited.

Engaging in investments they do not have any experience in or depositing their money in banks, is strongly related to their fear and 'Paranoia' of losing their money. When it was suggested to them to invest in stock markets, they immediately rejected, and their rejection was based on their fear of investing in the unknown or the 'un-understandable', to be more accurate. It has always been to them that stock markets are narrowed for professionals only; and this is the *problem* we found.

The *purpose* of the research is to simplify the understanding of Derivative Markets in stock markets to the public/potential investors, because this was the main concern for them, more than the spot market/trades. They stated that spot trading is not hard to know, but it just needs tracking of shares' performance over a sufficient time. Moreover, to motivate them to diversify when utilizing their wealth, by investing in stock markets rather than merely depositing in bank deposits. Additionally, to help them investing in those markets with a transparent vision and a clear idea of what are they investing in

*Dr. Ahmad Adel Mostafa, College of Business and Economics, Department of Marketing and Management, American University of Kuwait, Kuwait, Email: amostafa@auk.edu.kw; ahmad.adel.work@hotmail.com

Mostafa

and doing, which will set off their money from the 'idle/rescission' state it was dipped in. Moreover, to show the implication on stock markets, which of course, and as known, supports economies when it is active and making profit; if investors transfer only five per cent of their deposited wealth in bank to the stock markets. The result will be a much higher amount of money pumped-in, with knowledge and understanding, in the stock markets, which will reactivate or revitalize the stocks and shares of companies in stock markets and as a result will generate higher profits to everyone (including investors and shareholders), and will surely participate in propping up country's economy.

The findings of this research are different from any other previous ones because no one discussed this subject before in an academic study or research until now. The research and its findings is made to show to investors and potential investors that Bank Deposits (sometimes called idle assets) are not their best choice and they should diversify in utilizing their wealth. The research is distinctive because it is showing to investors and potential investors another way they can and could have used in using their wealth that was not clearly defined in previous researches, and also as a result showing, numerically, the implication if diversifying their wealth, that are in cash deposits, between bank deposits and stock markets.

The paper is organized to show first the most used types of derivative instruments, with illustration; putting the reader in the 'role' of the investor to show simplicity in delivering knowledge about it to the investors. After, we will present the amount of cash deposits in banks against cash in stock exchanges in the GCC countries in a three years period. Last, the research will hypothesize an assumption that demonstrates a transfer percentage from publics' private deposits investments in banks to stock markets, in the GCC countries. The assumption displays the impact on the 'next year' (2009) if a change of five per cent up occurs on an annual basis on the total GCC Stock Market index, and a change of five per cent down occurs the same way on the total GCC private deposits, which will then guide the reader to the results of the research.

Criticisms of derivative markets The criticism of derivatives is that they are known to be 'too risky,' especially to investors with limited knowledge of complex instruments. Because of the high leverage involved in derivatives payoffs, they are sometimes likened to gambling.

The benefits of derivatives markets are that they:

- Provide price information.
- Allow risk to be managed and shifted among the market participants.
- Reduces transaction cost.

2. Literature Review

The problem of investors' and potential investors' fearfulness has been discussed many times in Investment companies in Kuwait during formal and informal meetings, but the meetings were held *NOT* for this purpose (I have personally attended some as the Asset Management Consultant presenting my company); and that's why the problem was always marginalized. No serious previous studies were made regarding this problem specifically. I could not find a single research/study discussing how we can set off and revitalize stock markets again to enable them to support economies, from the side of overcoming investors' fears of losing their money in investing in something they

Mostafa

don't know anything about. Hence, this study was made to show the hypothesis of having people understanding derivative markets and feel safer about it, as a result to understanding; and accordingly shift only a small portion of their investments in banks 'as deposits' (Five percent assumption for shifting) to derivative investments and stock markets. (More about it is discussed in the methodologies section)

3. Research

3.1 Forward Markets and Forward Contracts

A *forward contract* is a two-sided contract that obligates one party to buy and the other to sell a specific quantity of an asset, at a certain price, on a specific date in the future. Typically, neither party to the contract pays anything to get into the contract. If the expected future price of the asset increases over the life of the forward contract, the right to buy at the 'contract price' will have positive value, and the obligation to sell will have an equally negative value. If the future price of the asset falls below the contract price, the result then is opposite and the right to sell (at an above-market-price) will have the positive value. The parties may enter into the contract as a conjecture on the future price. More often, a party seeks to enter into a forward contract to hedge a risk they already have. The forward contract is used to eliminate the uncertainty about the future price of an asset they plan to buy or sell at a later date.

Differences between the positions held by the long and short parties to the forward contract in terms of delivery/settlement and default risk is very important to know. The party to the forward contract that agrees to buy the financial or physical asset has a long-forward position and is called the '*long*'. The party to the forward contract that agrees to sell or deliver the asset has a short forward position and is called the '*short*'.

Each party to a forward contract is exposed to a *default risk*, the probability that the other party 'the counterparty' will not perform as promised. It is unusual for any cash to actually be exchanged at the beginning of a forward contract, unlike futures contracts in which each party posts an initial deposit 'margin' as a performance guarantee. At any point in time, including the settlement date, only one party to the forward contract will 'owe' money, meaning that that side of the contract has a negative value. The other side of the contract will have a positive value of an equal amount.

This is one procedure for settling a forward contract at a *settlement date* or expiration date set in the contract.

A party to a forward contract can terminate the position prior to expiration by entering into an opposite forward contract with an expiration date equal to the time remaining on the original forward contract.

There is a big difference between a dealer and an end-user of a forward contract. The **end-user of a forward contract** is typically a corporation, government unit, or a non-profit institution that has existing risk they wish to avoid by locking in the future price of an asset. **Dealers** are often banks but can also be financial institutions non-banks such as Merrill Lynch. Ideally, dealers will balance their overall long positions with their overall short positions by entering into forward contracts with end-users who have opposite existing risk exposures.

Mostafa

3.1.1 Characteristics of Equities Forward Contracts

Equity forward contract where the underlying asset is a single stock, a portfolio of stocks, or a stock-index, work in much the same manner as other forward contracts. An investor who wishes to sell 10,000 shares of HP stock 90 days from now and wishes to avoid the uncertainty about the stock price on that date, could do so by taking a short position in a forward contract covering 10,000 HP shares. (We will leave the motivation for this and the pricing of such a contract aside for now).

Dividends are usually not included in equity forward contracts, as the uncertainty about dividend amounts and payment dates is small compared to the uncertainty about future equity prices. Since forward contracts are custom instruments, the parties involved could specify a total return value 'including dividends' rather than simply the index value. This would effectively remove dividend uncertainty as well.

3.1.2 Characteristics of Forward Contracts on Zero-Coupon and Coupon Bonds

Forward contracts on short-term, zero-coupon bonds (T-bills in the U.S.) and coupon interest-paying bonds are quite similar to those on equities. However, while equities do not have a maturity date, bonds do have, and the forward contract must settle before the bond matures. The price specified in forward contracts on coupon-bearing bonds is typically stated as a yield-to-maturity as of the settlement date, exclusive of accrued interest. If the forward contract is on bonds with the possibility of default, there must be provisions in the contract to define default and specify the obligations of the parties in the event of default. Special provisions must also be included if the bonds have embedded options such as 'call' features or 'conversion' features. Forward contracts can be constructed covering individual single bonds or portfolios of bonds.

3.1.3 Characteristics of Currency Forward Contracts

Under the terms of 'currency forward contract', one party agrees to exchange a certain amount of a currency for a certain amount of another currency at a certain future date. This type of forward contracts in practice will specify an exchange rate at which one party can buy a fixed amount of the currency underlying the contract. As with other forward contracts, the cash settlement amount is the amount necessary to compensate the party who would be disadvantaged by the actual change in market rates as of the settlement date of the contract.

3.2 Futures Markets and Future Contracts

Futures contracts are much like the forward contracts we learned about in the previous topic review. They are *similar* in that both:

- Can be either cash settlement or deliverable contracts.
- Are priced to have a zero-value at the time an investor enters into the contract.

Futures contracts *differ* from forward contracts in the following areas:

- Futures contracts trade on organised exchanges; while Forward contracts are private contracts and do not trade.

Mostafa

- Futures contracts are highly standardized contracts; while Forwards contracts are customised contracts satisfying the needs of the parties involved.
- A single 'clearinghouse' is the counterparty to all futures contracts; while Forwards contracts are contracts with the originating counterparty.
- Governments regulate futures markets; while Forward contracts are usually not regulated.

3.2.1 Characteristics of Futures Contracts

Standardisation; a major difference between forward contracts and future contracts is that future contracts have standardised contract terms. Future contracts specify the quantity and quality of goods that will be delivered, the delivery time, and the method of delivery. The exchange also sets the minimum price fluctuation (which is called the tick-size). Contracts also have a daily price limit, which sets the maximum price movement allowed in a single day. The maximum price limits expand during periods of high 'volatility' and are not in effect during the delivery month. The exchange also sets the trading times for each contract. It would look like that these rules would restrict trading activity, but, in fact, they motivate trading. Why? Standardisation tells traders exactly what is being traded and the conditions of the transaction. *Uniformity promotes market liquidity*. The purchaser of a future contract is said to have gone long or taken a *long position*, while the seller of a future contract is said to have gone short or taken a *short position*. For each contract traded, there are two parties, a buyer and a seller. The long has contracted to buy the asset at the contract price at contract expiration date, and the short has an obligation to sell at that price.

Clearinghouse; each market exchange has a *clearinghouse*. The clearinghouse guarantees that traders in the future market will respect their obligations. The clearinghouse does this by splitting each trade, once it is made, and acting as the opposite side of each position. By doing this, the clearinghouse allows either side of the trade to reverse positions at a future date without having to contact the other side of the initial trade. This allows traders to enter the market knowing that they will be able to reverse their positions. Traders are also freed from having to worry about the counterparty defaulting, since the counterparty is now the clearinghouse. In the history of the Kuwaiti futures trading, the clearinghouse has never defaulted on a trade.

3.2.2 Margin in the Securities Markets and Margin in the Futures Markets

In stock markets, margin on a stock or bond purchase is a percentage of the market value of the asset. Initially, 50 per cent of the stock purchase amount may be borrowed and the remaining amount, the equity in the account, must be paid in cash. There is certain interest charged on the borrowed amount, the margin loan. The margin percentage, the per cent of the security value that is 'owned', will vary overtime and must be maintained at certain minimum percentage of market value.

In the futures markets, margin is a performance guarantee. It is money deposited by both the long party and the short party. There is no *loan* involved and, thus, no interest charges. Each futures exchange has a clearinghouse. To safeguard and protect the clearinghouse, the exchange requires traders to post margin and settle their accounts on a daily basis. Before trading, the trader must deposit certain funds 'called margin' with their broker (who, in return, will post margin with the clearinghouse). In stock markets, the cash deposited is paid to the seller of the security, with the balance of the

Mostafa

purchase price provided by the broker. This is why the unpaid balance is a loan, with interest charged on the buyer who purchased on margin. The initial and the minimum margins in securities accounts are set by the Reserves, although brokerage houses can require more. The initial and maintenance margins in the futures market are set by the clearinghouse and are based on historical daily price instability of the underlying asset since margin is resettled daily in futures accounts. Margin in futures accounts is typically *much lower* as a percentage of the value of the assets covered by the futures contract. This means that the leverage, based on the actual cash required, is much higher for futures accounts.

In contracts in which a bank or brokerage is usually the counterparty in the contract, there is a buyer and a seller on each side of a futures trade. The futures exchange selects the contracts that will trade. The asset, the amount of the asset, and the settlement/delivery date are standardized in this way. Each time there is a trade, the delivery price for that contract is the equilibrium price at that point in time, which depends on supply (by those parties wishing to be short) and demand (by those parties wishing to be long).

The system or mechanism by which supply and demand determine this equilibrium is open outcry at a particular location on the exchange floor called a 'pit'. Each trade is reported to the exchange so that the equilibrium price, at any point in time, is known to all the traders.

3.2.3 Futures Position Closeout (i.e. offset) Prior to Expiration

You may make a *reverse or an 'offsetting'* trade in the futures market. This is very similar to the way we described exiting a forward contract prior to expiration. With futures, though, the other side of your position is held by the clearinghouse—if you make an exact opposite trade (quantity, maturity, and good) to your current position; the clearinghouse will net your positions out, leaving you with zero balance. This is how most futures positions are settled.

3.2.4 Initial Margin, Maintenance Margin, Variation Margin, Settlement Price, and Marking to Market

3.2.4.1 Initial margin is the money that must be deposited in a futures account before any kind of trading takes place. It is set for each type of the underlying asset. Initial margin per contract is relatively low and equals about one day's maximum price fluctuation on the total value of the contract's asset.

3.2.4.2 Maintenance margin is the amount of margin that must be maintained in the futures account. If the margin balance in the account falls below the maintenance margin due to a change in the contract price for the underlying contract's asset, additional funds must be deposited to bring up the margin balance to the initial margin requirement. This is different from the equity account margins, which require investors only to bring up the margin percentage back to the maintenance margin, and not back to the initial margin level.

3.2.4.3 Variation margin is the funds that must be deposited in the account to bring it back to the initial margin amount. If the account margin exceeds the initial margin requirement, funds can be used or withdrawn as initial margin for additional positions.

Mostafa

3.2.4.4 Settlement price is similar to the closing price for a stock but is not simply the price of the last trade. It is an average of the trades' prices during the last period of trading, called the 'closing period', which is set by the exchange. This attribute of the settlement price prevents manipulation by traders. The settlement price is used to make margin calculations at the end of each trading day.

3.2.4.5 Marking to market is the process of adjusting the margin balance in a futures account each day for the change in the value of the contract's assets from the previous trading day, based on the new settlement price.

The futures exchanges can require a mark-to-market more frequently (than daily) under extraordinary circumstances.

3.2.5 Price limits, limit move, limit up, limit down, and locked limit.

Many futures contracts have price limits, which are exchange-imposed limits on how much the contract's price can change from the previous day's settlement price. Exchange members are prohibited from executing trades at prices outside these specified limits. If the 'equilibrium' price at which traders would willingly trade, is above the upper-limit or below the lower-limit, trades cannot take place.

There are four ways to terminate a futures contract:

- A short position can terminate the contract by delivering the goods, a long position by accepting delivery and paying the contract price to the short. This is called '*delivery*'. The location for the delivery (for physical assets), terms of the delivery, and the details of exactly what is to be delivered are all specified in the contract. The deliveries represent less than one per cent of all contract terminations.
- In a cash-settlement contract, delivery is not an option. The futures account is marked-to-market based on the settlement price on the last day of trading.
- A position can be terminated by making a close-out, or *offsetting trade*, in the futures market as previously described. Since the other side of your position is held by the clearinghouse, if you make an exact opposite trade (quantity, maturity, and asset) to your current position, the clearinghouse will net your positions out, leaving you with no future obligation. This is how most futures positions are terminated.
- A position may also be settled through something called an *exchange for physicals (EFF)*. Where, you find a trader with an opposite position to your own and deliver the goods, and settle-up between yourselves, off the floor of the exchange. You must then contact the clearinghouse and inform them with what happened. An exchange for physicals is different from a delivery in that the traders actually exchange the goods, the contract is not closed on the floor of the exchange, and the two traders privately negotiate the terms of the transaction. Regular or normal delivery involves only one trader and the clearinghouse.

3.2.6 Delivery Options in Futures Contracts

Some futures contracts grant **delivery options** to the short position party; options on what, where, and when to deliver. Some Treasury bond contracts give the short position a choice of several bonds that are acceptable to deliver and options as to when to deliver during the expiration month. Physical assets, such as gold, may offer a choice of delivery locations to the short position. These options can be of significant value to the holder of the short position in the futures contract.

Mostafa

The following terms scalpers, day traders, and position traders refer to participants in the futures markets on the floor of the exchange.

- **Scalpers** try to make money by buying at the 'bid' and selling at the 'ask' prices. They hold positions for very short periods, possibly less than a minute. They are not speculating on the direction of the price movement. Scalpers profit, opportunistically, from trades and provide liquidity to the market by their trading in the process.
- **Day traders** try to profit by anticipating the direction of the short-term price movements and, as their name implies, do not carry open positions past the end of the trading day.
- **Position traders** are traders who try to profit from anticipating the direction of price moves and hold positions much longer. (i.e. overnight or for days).

All of these types of traders mentioned above are members who hold seats on the exchange, do not execute trades for public investors (nonmembers of the exchange), and provide liquidity to the futures markets.

3.3 Option Markets and Option Contracts

An *option contract* gives its owner the right, but not the legal obligation, to conduct a transaction involving an asset at a predetermined future date (the exercise date), and at a predetermined price (the exercise or strike price). Options give the option buyer the right to decide whether, or not the trade will eventually take place. The seller of the option has the obligation to perform if the buyer exercises his option right.

- The owner of a *call option* has the right to purchase the contract's underlying asset at a specific price for a specified period.
- The owner of a *put option* has the right to sell the contract's underlying asset at a specific price for a specified period.

For every owner of an option, there must be a seller. The seller of an option is also called the *option writer*. There are four possible options' positions:

- Long call: the buyer of a call option—he has the right to buy an underlying asset.
- Short call: the writer 'seller' of a call option—he has the obligation to sell the underlying asset.
- Long put: the buyer of a put option—he has the right to sell the underlying asset.
- Short put: the writer 'seller' of a put option—he has the obligation to buy the underlying asset.

To acquire these rights, owners of the options must buy them by paying a price, called the *option premium*, to the seller of the option. Listed stock option contracts trade on exchanges and are normally for 100 shares of stock. After issuance, the stock option contracts are adjusted for stock splits but not cash dividends.

Mostafa

3.3.1 American Option, European Option, Moneyness, Payoff, Intrinsic Value and Time Value of an Option

3.3.1.1 American options may be exercised at any time up to, and including, the option contract's expiration date.

3.3.1.2 European options can be exercised only on the option contract's expiration date.

(The name of the option does not imply where the option trades—they are just names to mention).

At expiration of the contract, an American option and a European option on the same underlying asset with the same strike price are identical. They may either be exercised or allowed to expire. Before expiration, though, they are different and may have different values, so you must differentiate between the two. If two options are identical (maturity, underlying stock/asset, strike price, etc.) in all ways, except that one is an American option and the other is a European option, the value of the American option will equal, or exceed, the value of the European option. Why? The early exercise feature of the American option gives it more flexibility, so it should be worth at least as much and possibly more than the European option.

3.3.1.3 Moneyness refers to whether an option is *in-the-money* or is it *out-of-the-money*. If immediate exercise of the option would generate a profit (positive payoff), it is considered in-the-money. If immediate exercise of the option would result in a loss (negative payoff), it is considered out-of-the-money. When the current asset price equals to the exercise price, exercise will generate neither a profit nor loss, and the option is considered to be *at-the-money*.

3.3.1.4 Intrinsic value of the option is the amount by which the option is in-the-money. It is the amount that the option owner would receive if the option were exercised. An option has zero intrinsic value when it is at-the-money or out-of-the-money, irrespective of whether it is a call or a put option.

3.3.1.5 The time value of an option is the amount by which the option premium exceeds the intrinsic value; and it is sometimes called the speculative value of the option. This relationship can be written as:

$$\text{Option value} = \text{intrinsic value} + \text{time value}$$

As we discussed earlier, the intrinsic value of an option is the amount by which the option is in-the-money. At any point during the life of the option's contract, its value will be greater than its intrinsic value. This is because there is some probability that the stock price will change in an amount that gives the option a positive payoff, at expiration time, greater than the 'current' intrinsic value. Recall that an option's intrinsic value, to a buyer, is the amount of the payoff at expiration time and is bounded by zero. When an option reaches expiration there is no 'time' remaining and the time value then is zero. For American options and in most cases for European options, the longer the time to expiration, the greater the time value and, other things equal, the greater the option's premium price.

Mostafa

3.3.2 Types of options in terms of the underlying instruments

The four types of options considered here are: (1) financial options, (2) options on futures, (3) commodity options, (4) and interest rate options.

3.3.2.1 Financial options include equity options, and other options based on stock indexes, Treasury bonds, currencies, and interest rates. The strike price for financial options can be in terms of yield-to-maturity on bonds, an index level, or an exchange rate for a *foreign currency options*. KIBOR-based *interest rate options* have payoffs based on the difference between the KIBOR at expiration date and the strike rate in the option.

Bond options are mostly based on Treasury bonds because of their active trading. There are relatively few listed options on bonds—most of them are over-the-counter options. Bond options can be delivered or settled in cash. The mechanics of bond options are like those mechanics of equity options, but are based on bond prices and a specific face value of the bond. The buyer of a call option on a bond will gain/profit if the interest rates decreased and bond prices increased. A put buyer will gain when rates increase and bond prices decrease.

Index options settle in cash, nothing is delivered, and the payoff is directly made to the option holder's account. The payoff on an index call 'long' is the amount (if there is any) by which the index level at the expiration date exceeds the index level specified in the option 'the strike price', multiplied by the *contract multiplier*. An exact equal amount will be deducted from the account of the index call option writer.

3.3.2.2 Options on futures, sometimes called the futures options, give the holder the right to buy or sell a specific futures contract on, or before, a given date at a given futures price, the strike price.

- *Call options* on futures contract gives the holder the right to enter into the long side of a futures contract at a given futures price.
- *Put options* on futures contract gives the holder the option to take on a short futures position at a futures price that is equal to the strike price. The writer has the obligation to take on the opposite 'long' position if the option is exercised.

3.3.2.3 Commodity options give the holder the right to either buy or sell a fixed quantity of a physical asset at a fixed 'strike' price.

3.3.2.4 Interest rate options are similar to stock options except, that the exercise price is an interest rate and the underlying asset is a reference rate such as KIBOR or LIBOR. Interest rate options are also similar to FRAs because there is no asset to be delivered. Instead, they are settled in cash, in an amount that is based on a notional/estimated amount and the spread between the strike rate and the reference rate. Mostly, interest rate options are European options.

Calculating the payoff for a stock option, or any other type of option with a monetary-based exercise price, is straightforward. At expiration, a call owner receives an amount by which asset price exceeds strike price, and zero otherwise. The holder of a put will receive an amount that the asset price is below the strike price at expiration, and zero otherwise.

Mostafa

While it is known that bonds are quoted in terms of yield-to-maturity, T-bills in discount yield, indexes in index points, and currencies as an exchange rate, the same principle applies. That is, in each case, to get the payoff per unit of the related asset, we need to translate the asset value to a Kuwaiti Dinar equivalent value and the strike price (or rate, or yield) to a Kuwaiti Dinar strike price. We can then multiply this payoff times whatever many units of the asset are covered by the options contract.

- For a stock index option, we saw that these Kuwaiti Dinar values were obtained from the multiplication of the index level and the strike level by the multiplier specified in the contract. The resulting Kuwaiti Dinars payoffs are per contract.
- The payoff on options on futures is the cash that the option holder receives when he exercises the option and the resulting futures position is marked-to-market.

An **interest rate cap** is considered a series of interest rate call options, having expiration dates that correspond to the reset dates available on a floating rate loan. Caps are often used to protect a floating rate borrower from increases in interest rates. Caps place a maximum upper-limit on the interest payments on a floating rate loan. Caps pay when rates increase more than the cap rate. In this regard, a cap can be viewed as a series of interest rate call options with strike rates that is equal to the cap rate. Each option in a cap is called a *caplet*.

An **interest rate floor** is considered a series of interest rate put options, having expiration dates that correspond to the reset dates on a floating rate loan. Floors are often used to protect a floating rate lender from a decrease in interest rates. Floors place a minimum lower-limit on the interest payments that are received from a floating rate loan. An **interest rate floor** on a loan operates just the 'opposite' of a cap. The floor rate is considered a minimum rate on the payments on a floating rate loan. Floors are pay when rates decrease below the floor rate. In this regard, a floor can be viewed as a series of interest rate put options with strike rates that is equal to the floor rate. Each option in a floor is called a *floor let*.

An **interest rate collar** combines both a cap and a floor. A borrower with a floating rate loan may *buy* a cap for protection against rates more than the cap and *sell* a floor in order to pay some of the cost of the cap.

3.4 Swap Markets and Swap Contracts

Before we get into details of swaps, a simple introduction may help as you go through different types of swaps. You can view swaps as the exchange of one loan for another. If you lend me KWD10,000 at a floating rate and I lend you KWD10,000 at a certain fixed rate, we have created a swap. There is no reason for the KWD10,000 amount to actually change hands; the two loans make this useless. At each payment date, I will make a payment to you based on the floating rate and you will make me one based on the fixed rate. Again, it is pointless to exchange the full amounts; the one with the larger payment liability will make a payment of the difference recognized to the other one. This describes the payments of a 'fixed-for-floating rate' or 'plain vanilla' swap.

A currency swap can be viewed the same way. If I lend you one million Euros, at the Euro rate of interest, and you lend me the equivalent amount of Kuwaiti Dinars at today's exchange rate at the Kuwaiti Dinars rate of interest, we have done a currency swap. We will 'swap' back these same amounts of currency at the maturity date of the

Mostafa

two loans. In the interim, I borrowed Kuwaiti Dinars so I make Kuwaiti Dinars interest payments, and you borrowed Euros and you must make interest payments in Euros.

For other types of swaps we just need to explain how the payments are calculated on the loans. For an equity swap, I could promise to make quarterly payments on your loan to me equal to the return on a stock index, and you could promise to make fixed-rate, or floating-rate, payments to me for my loan to you. If the stock index goes down, my payments to you will be negative (i.e., you make a fixed-rate payment to me *and* a payment equal to the decrease in the stock index over the quarter). If the stock index went up over the quarter, I would make a payment based on the percentage increase in the index. Again, payments could be 'netted' so that only the difference changes hands.

This instinctive explanation of swaps should make what follows a bit easier. Now let us go deeper into the mechanics of swaps. We have to clarify exactly how the interest payments will be calculated, how often they are made, how much is to be loaned, and how long the loans are for.

Swaps are agreements to exchange a series of cash flows on periodic *settlement dates* over a certain period (e.g., quarterly payments over three years). In the simplest type of swap, one party makes *fixed-rate* interest payments on the notional/estimated principal specified in the swap in return for *floating-rate* payments from the other party. At each settlement date, the two payments are *netted* so that only one 'net' payment is made with the difference. The party with the greater liability makes a payment to the other party on the settlement date. The length of the swap is termed the *tenor* of the swap and the contract ends on the termination date. A swap can be broken down into a series of forward contracts (FRAs) that expire on the settlement dates.

In many respects, swaps are similar to forwards:

- Swaps require no payment by either party at initiation.
- Swaps are not traded in any organised secondary market.
- Swaps are unregulated.
- Default risk is an important element of the contracts.
- Most swaps market's participants are large institutions.
- Rarely individuals are swaps market's participants.

There are swaps facilitators available who bring together parties with needs for the opposite sides of swaps. There are also dealers, large banks and large brokerage firms, who act as principals in trades just as they usually do in forward contracts. It is a large business, the total notional/estimated principal of swaps contracts is estimated at over \$50 trillion.

There are **four ways to terminate a swap** before its original termination date.

- *Mutual termination.* A cash payment can be made by one party that is acceptable to the other one. Like forwards, swaps can accumulate value as market prices or interest rates change overtime. If the party that has been unprivileged by the market movements is willing to make a payment of the swaps value to the counterparty and the counterparty is willing to accept it, they can mutually terminate the swap contract.

Mostafa

- *Offsetting contract.* Just as with forwards, if the terms of the original counterparty offers for early termination are unacceptable, the alternative is to enter into an offsetting swap. If our five-year quarterly pay floating swap has three years to go. We can seek a current price on a pay-fixed (receive floating) swap that will provide our floating payments and leave us only with a fixed-rate liability.

Just as with forwards, exiting a swap may involve taking some loss. Consider the case where we receive three per cent fixed on our original five-year pay floating rate swap, but must pay a four per cent fixed on the offsetting swap. We have 'locked in' a loss because we must pay one per cent higher rates on the offsetting swap than we receive on the swap we are offsetting. We must make quarterly payments for the next three years, and not receiving anything in return. Exiting a swap through an offsetting swap with other than the original counterparty will also expose investors to default risk, just as with forwards.

- *Resale.* You could sell the swap to another party, with the permission of the counterparty to the swap.

- *Swaption.* A swaption is an option to enter into a swap. The option to enter in an offsetting swap provides an option to terminate an existing swap. Consider that, in the case of the previous five-year pay floating rate swap, we purchased a three-year call option on a two-year pay fixed swap at three per cent. Exercising this swap would give us the offsetting swap to exit our original swap. The cost for such protection is the 'swaption' premium paid.

In a **currency swap**, one party makes payments denominated in a currency, while the payments from the other party are made in another currency. Typically, the notional amounts of the contract, expressed in both currencies at the current exchange rate, are exchanged at contract initiation date and returned at the contract termination date in the same amounts.

There are **four possible types of currency swaps** available.

- Party 'A' pays a fixed interest rate on AUD received, and Party 'B' pays a fixed interest rate on KWD received.
- Party 'A' pays a floating interest rate on AUD received, and Party 'B' pays a fixed interest rate on KWD received.
- Party 'A' pays a fixed interest rate on AUD received, and Party 'B' pays a floating interest rate on KWD received.
- Party 'A' pays a floating interest rate on AUD received, and Party 'B' pays a floating interest rate on KWD received.

Here are the steps in doing a fixed-for-fixed currency swap: The notional principal actually changes hands at the beginning of the swap. Party 'A' gives KWD to Party 'B' and gets AUD in return. Why? Because the motivation of Party 'A' was to get AUD to start up their operations and the motivation of Party 'B' was to get KWD. *Notional principal is swapped at the initiation.* Interest payments are made without netting. Party 'A', who got AUD, pays to party 'B' the Australian interest rate on the notional amount of AUD. Party 'B', who got KWD, pays to party 'A' the Kuwaiti interest rate on the notional amount of KWD received. Since the payments are made in different currencies, netting is not a typical practice here. *Full interest payments are exchanged*

Mostafa

at each settlement date, and each in a different currency.

At the termination of the swap agreement 'maturity date', the counterparties give each other back the exchanged notional amounts. The *Notional principal is swapped back again at the termination of the agreement.*

3.4.1 Plain Vanilla Interest Rate Swap

The *plain vanilla interest rate swap* involves trading fixed-rate interest payments for floating-rate interest payments. The party who wants floating-rate interest payments agrees to pay fixed-rate interest payments and has the *pay-fixed* side of the swap. The counterparty, who receives the fixed payments and agrees to pay variable/floating-rate interest payments, has the *pay-floating* side of the swap and is called the *floating-rate payer*. The floating rate quoted is generally *the Kuwait Interbank Offered Rate (KIBOR)* in our illustration, flat or plus a spread.

Let's have a look at the cash flows that occur in a *plain vanilla interest rate swap*.

- Since the notional principal swapped is the same for both counterparties and is in the same currency units, it is needless to, actually, exchange the cash. *Notional principal is not usually swapped* in single currency swaps.
- The determination of the variable/floating rate is at the beginning of the settlement period, and the cash interest payment is made at the end of the settlement period. Since the interest payments are in the same currency, there is no need for both counterparties to actually exchange hands for the cash. The difference between the fixed-rate interest payment and the variable/floating-rate interest payment is calculated and paid to the appropriate counterparty. *Net interest is paid by the one who owes it, to the counterparty.*
- At the conclusion of the swap, and since the notional principal of the swap was not swapped, there is no transfer of funds took place.

You should note that swaps are like a 'zero-sum' game. What one party loses, the other party gains. The net formula for the *fixed-rate interest payer*, based on a 360-day year and a floating rate of KIBOR (or LIBOR if using London's Rate) is:

$$(\text{net fixed-rate payment})_t = (\text{swap fixed rate} - \text{LIBOR}_{t-1}) \left(\frac{\text{number of days}}{360} \right) (\text{notional principal})$$

If this number is positive, the fixed-rate interest payer owes a net payment to the floating-rate interest party. If this number is negative, then the fixed-rate interest payer receives a net flow from the floating-rate interest payer. *In plain vanilla swaps, one party pays fixed-rate and the other pays a floating-rate. Sometimes swap payments are based on a 365-day year, and not necessarily 360-day year.*

3.4.2 Equity Swaps

In an equity swap, the return on a stock, a stock index, or a portfolio is paid each period by one party in return for a fixed-rate payment or a floating-rate payment. The return can be the capital appreciation or the total return including the dividends on the stock, stock

Mostafa

index, or portfolio. In order to reduce equity risk, the 'portfolio manager' might enter into a one-year quarterly pay S&P 500 index swap and agree to receive a fixed-rate. The percentage increase of the index, each quarter, is netted against the fixed rate to determine the payment that should be made. If the index return is negative, the fixed-rate payer must also pay the percentage decrease of the index to the portfolio manager. Uniquely among the types of swaps, equity swap payments can be floating-rate on both sides and the payments then are not known until the end of each quarter. With interest rate swaps, both the fixed-rate and floating-rate payments are known at the beginning of the period for which they will be paid.

A swap on a single stock can be motivated by the desire of protecting the value of a position over the period of the swap. For protecting a large capital gain in a single stock, and to avoid the sale for tax or control reasons, the investor could enter into an equity swap as the equity-return's payer, and receive a fixed-rate in return. Any decrease in the stock price would be paid to the investor at the agreed upon settlement dates, in addition to the fixed-rate payment. If the stock appreciates, the investor will pay the appreciation minus the fixed payment.

4. Methodology

The chosen years of study (2004 – 2006) were selected as they reflect better accuracy since the Global Financial Crisis started in 2007, and the aftershock of it is still exists, especially in GCC countries that are considered to be "Investment" countries, more than "Industrial".

With employing Etatedore Company (Researchers), a study was made in 28 days (3 April, 2011 to 30 April, 2011) in Kuwait on 2000 participants (who has Bank Deposits, and do not know anything about derivative investments) asking them whether they are willing to invest in stock markets (mainly derivatives) or not. The result was shocking ... none of them showed interest! After giving them a fine amount of information about it for 10 minutes, 396 participants showed interest, which was a shocking number again! Gaining 396 customers in ten minutes was a pleasing result.

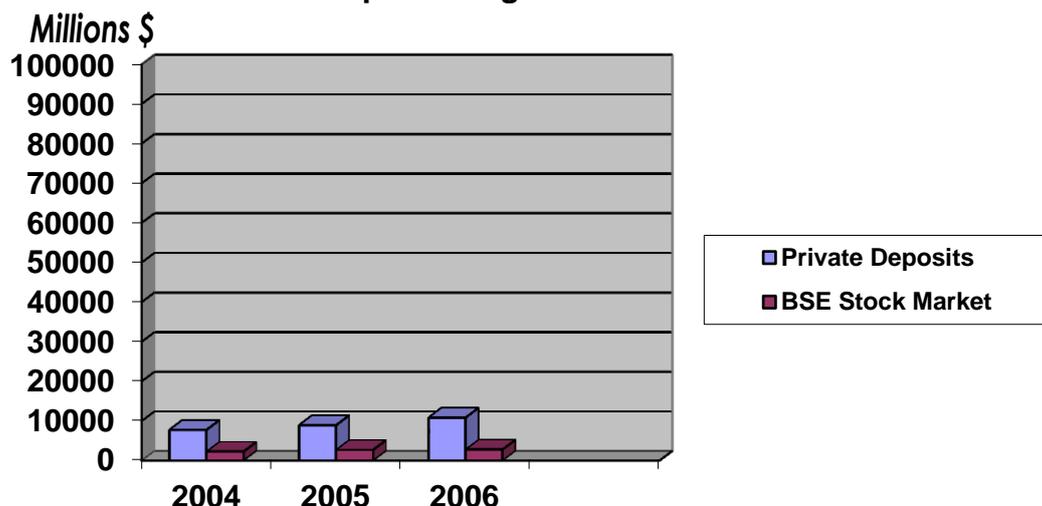
4.1 Data and Charts

The Graphs below display 'total investments' in Stock Markets (in each GCC country Stock Market) Vs Private Deposits (in each GCC country banks) in the past years (2004, 2005, 2006). Each Graph, but graphs 7 and 8, represents a country; the final graph is the GCC overall (graph 7).

The tables below each graph reflect the displayed data in the bar charts, along with the yearly consecutive change; displayed in percentage.

Mostafa

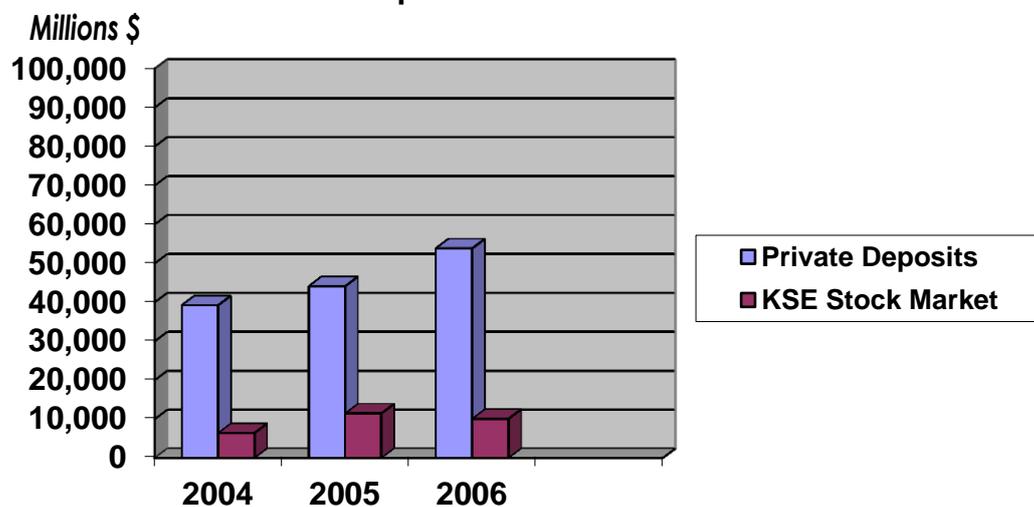
Graph 1: Kingdom of Bahrain



Million \$	2004	2005	2006
Private Deposits	7739.7	8926.5	10843.6
BSE Stock Market	2263.3	2,701	2,799
<i>Year – on – year growth</i>	-	19.3%	3.6%

Note: Year-on-year growth shows the change, in percentage, of the stock market each year compared to the previous year.

Graph 2: State of Kuwait

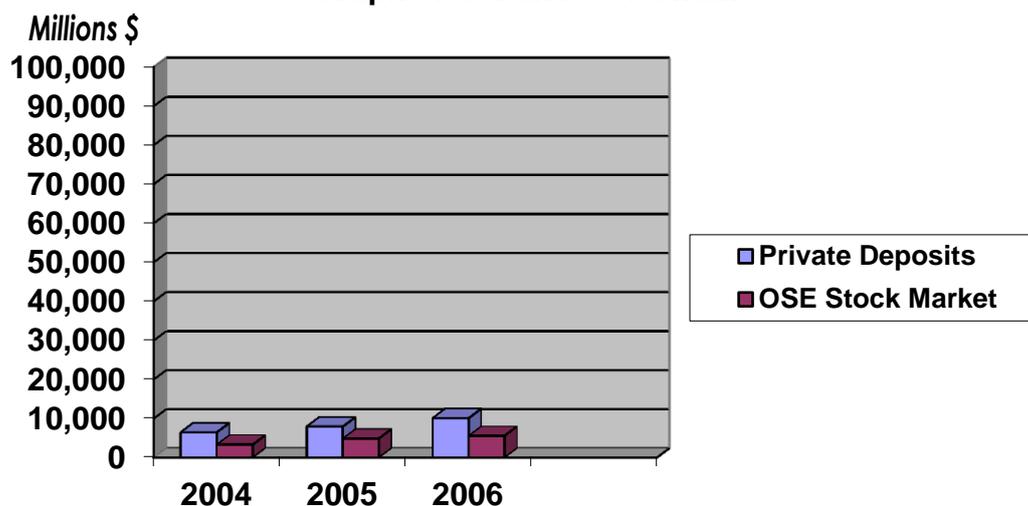


Million \$	2004	2005	2006
Private Deposits	39230.5	44108.9	53830.58
KSE Stock Market	6,410	11,445	10,067
<i>Year – on – year growth</i>	-	79%	-12%

Note: Year-on-year growth shows the change, in percentage, of the stock market each year compared to the previous year.

Mostafa

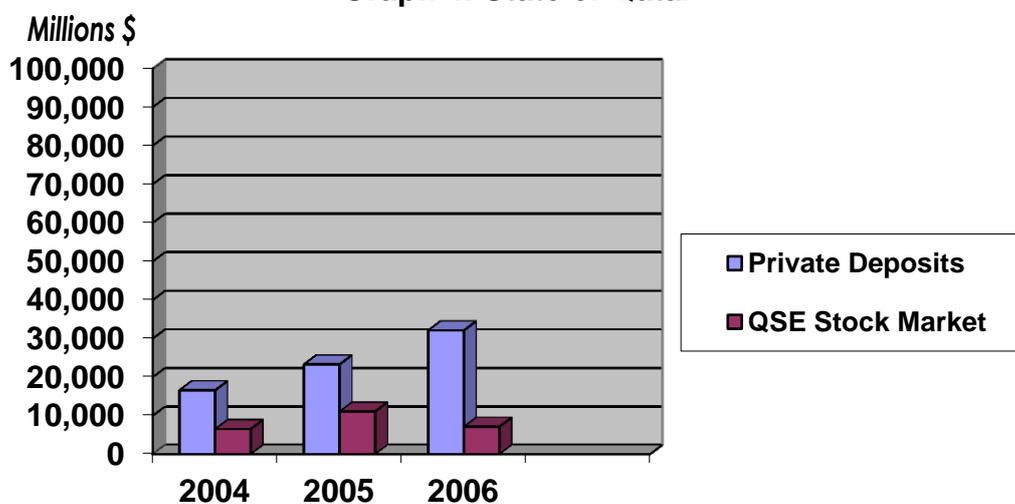
Graph 3: Sultanate of Oman



Million \$	2004	2005	2006
Private Deposits	6441.4	7935.7	10078.8
OSE Stock Market	3,332	4,871	5,567
<i>Year – on – year growth</i>	-	46%	14%

Note: Year-on-year growth shows the change, in percentage, of the stock market each year compared to the previous year.

Graph 4: State of Qatar

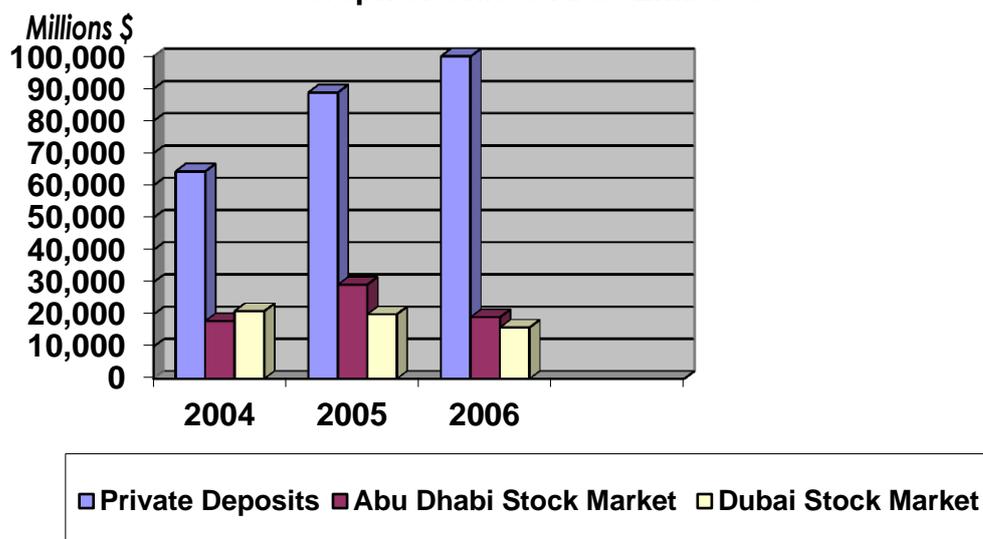


Million \$	2004	2005	2006
Private Deposits	16561.2	23262.2	32100
QSE Stock Market	6,494	11,053	7,133
<i>Year – on – year growth</i>	-	70%	35%

Note: Year-on-year growth shows the change, in percentage, of the stock market each year compared to the previous year.

Mostafa

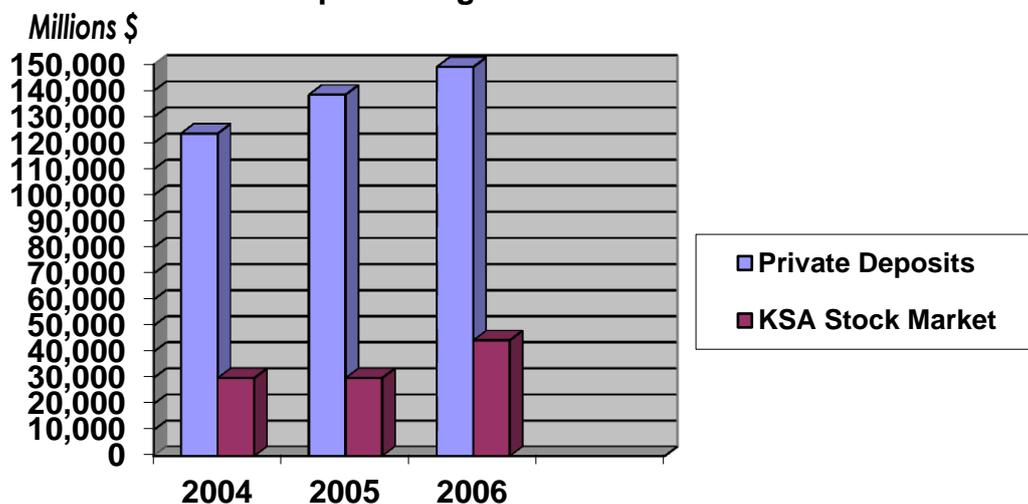
Graph 5: United Arab Emirates



Million \$	2004	2005	2006
Private Deposits	64309.9	88786.1	113866
Abu Dhabi Stock Market	17899	26,203	19101.2
<i>Year – on – year growth</i>	-	63.1%	-34.6%
Dubai Stock Market	20960.3	20003.1	15892.1
<i>Year – on – year growth</i>	-	45.4%	-20.6%

Note: Year-on-year growth shows the change, in percentage, of the stock market each year compared to the previous year.

Graph 6: Kingdom of Saudi Arabia

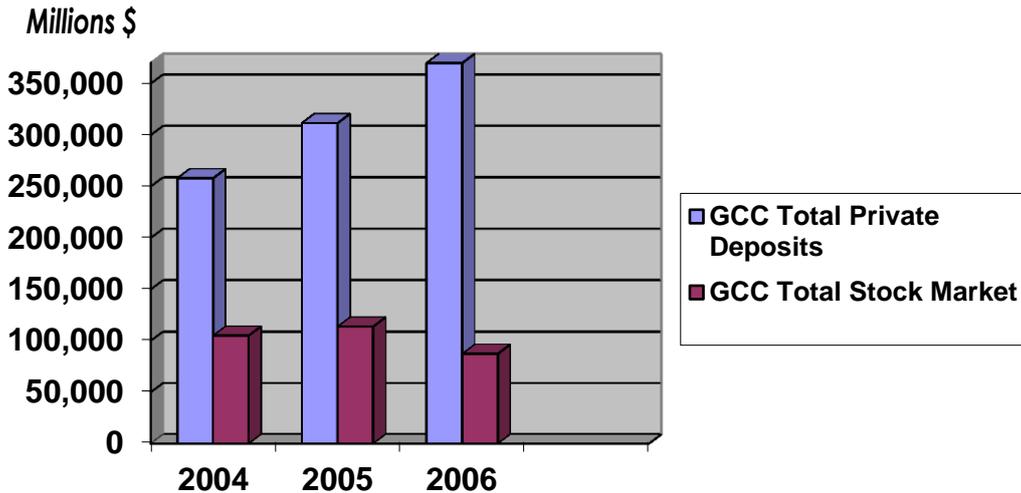


Million \$	2004	2005	2006
Private Deposits	123609.4	138493.3	149131.4
KSA Stock Market	29902.3	37475.6	44391
<i>Year – on – year growth</i>	-	25.3%	18.5%

Note: Year-on-year growth shows the change, in percentage, of the stock market each year compared to the previous year.

Mostafa

Graph 7: GCC Countries



Million \$	2004	2005	2006
GCC T. Private Deposits	257892.1	311512.7	369850.4
GCC T. Stock Market	104950.3	113751.7	87260.9

Year 2004 showed a difference between the public's investments in derivative markets & private deposits of 152941.8 Million Dollars gap, while that gap changed to 197761 Million Dollars in 2005, and to 282589.5 Million Dollars for the year 2006; showing clearly that the gap is growing each year and public are getting more aside than investing in derivatives, or stock markets in general.

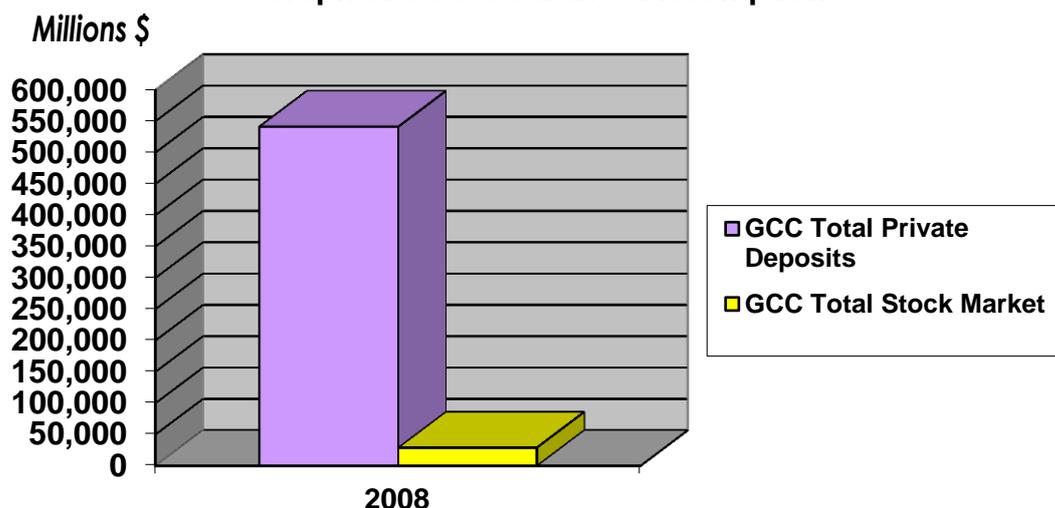
The mentioned growth of private deposits and premiums addressed the problem of the research clearly. It is obvious that the public/potential investors are programmed that derivative markets are too risky, & leaning on the safe side 'from their point-of-view' of depositing as an easy & safe way of earning money even if little; considering derivative & stock markets a risky stage that they don't want/prefer to try ,or to go through.

4.2 Hypothesis

This research implies an assumption that demonstrates a transfer percentage from publics' private deposits investments to stock markets, in the GCC countries in 2008 (One year after the Financial Crisis). The assumption displays the impact on the next years (2009) if a change of five per cent up occurs on an annual base on the total investments of the GCC Stock Markets investments in 2009, and a change of five per cent down occurs the same way on the total GCC private deposits. The five percent assumption came from the study made on the 2000 participants mentioned in the methodology section. 19.8% is the actual participant acceptance percentage of participants to transfer a cut of their money from banks deposits to stock markets. Some has shown acceptance to transfer half of their wealth, whereas other mentioned less than a quarter of their wealth; overall they expressed to transfer an average of 5.1% (which I have rounded down to give a clear non-fractional percentage). The assumption shows a 27069.3 Million Dollars pumped into the market to an activator and vitality to the market (In addition to what the governments will pump as well !)

Mostafa

Graph 8: GCC Countries Assumption



Million \$	2008 (Actual)	(Assumption) +/- Actual 2009
GCC T. Private Deposits	541384.8	27069.3 <i>five percent of the actual deposits</i>
GCC T. Stock Market	29087.9	56157.2 <i>actual investments + the five percent of the actual deposits</i>

5. Results

The results found from this research paper came from facts as per the below sequence.

- A study was made on 2000 participants found that 19.8% showed immediate interest in diversifying into stock & derivative markets, after they became knowledgeable about it.
- We used actual total private deposits in GCC banks in the year 2008, because it was the first year after the global financial crisis, and applied the assumption of 5% to it to show the actual impact on the year 2009 if this research study is to be implemented.
- A positive value of 27069.3 Million dollars shall appear at the beginning of 2009 in the 'side' of Investments in derivatives and stock markets; while a 27069.3 Million dollars decrease in private deposits shall appear at the end of the year 2008 (idle money).

This assumption of course cannot be applied unless the public/potential investors understand derivative markets & start changing the fearfulness thoughts they have from and about it. If implemented, this study shall support economies in a simple and fast way by revitalizing money markets in the GCC countries, who lacks other recessional activators such industrial and natural resources; except of oil.

This conclusion does not present new major ideas, or theories. In fact, it simply discusses a new management suggestion to support economies by managing depositors/potential investors' fearfulness thoughts; and creating & developing their understandings and knowledge about derivatives and stock market. The research suggests, based on facts and a study made, that if at least a small portion of the public change their fearfulness thoughts about derivatives & stock markets and transfers a small share of their wealth to its trend, from the deposits trend; those markets will be

Mostafa

revitalized again, which will support economies of these countries, from that side. Eventually, this result supports the paper's hypothesis and makes it valuable and new, and worth crucial and further studies to implement.

References

- Central Bank of the U.A.E Monthly Banking & Monetary Statistical Bulletin 2004, *Monthly Statistical Bulletin – Banking & Monetary Statistics*, Central Bank of the U.A.E Publications, viewed on 2 April 2012, <<http://www.centralbank.ae/en/pdf/StatBull/SBull-q4-2004.pdf>>
- Central Bank of the U.A.E Monthly Banking & Monetary Statistical Bulletin 2005, *Monthly Statistical Bulletin – Banking & Monetary Statistics*, Central Bank of the U.A.E Publications, viewed on 2 April 2012, <<http://www.centralbank.ae/en/pdf/StatBull/SBull-q4-2005.pdf>>
- Central Bank of the U.A.E Monthly Banking & Monetary Statistical Bulletin 2005, *Monthly Statistical Bulletin – Banking & Monetary Statistics*, Central Bank of the U.A.E Publications, viewed on 2 April 2012, <<http://www.centralbank.ae/en/pdf/StatBull/SBull-q4-2006.pdf>>
- Central Bank of Kuwait Quarterly Bulletin, *Quarterly Bulletin – Local Banks Liabilities*, Central Bank of Kuwait Publications, viewed on 2 April 2012, <<http://www.cbk.gov.kw/cbkweb/servlet/cbkmain?Action=qtbl&archive=20091012&tbl=RQ11>>
- Central Bank of Bahrain Monthly statistical Bulletin 2009, *Monthly Statistical Bulletin – Banking Statistics*, Central Bank of Bahrain Publications, viewed on 2 April 2012, <<http://www.cbb.gov.bh/assets/MSB/MSB-Dec.2009.pdf>>
- Central Bank of Bahrain Statistical Bulletin Archive 2009, *Statistical Bulletin – Banking Statistics*, Central Bank of Bahrain Publications & Data, viewed on 2 April 2012, <<http://www.cbb.gov.bh/assets/MSB/MSB-Dec.2009.pdf>>
- Central Bank of Bahrain Statistical Bulletin Archive 2009, *Statistical Bulletin – Banking Statistics*, Central Bank of Bahrain Publications & Data, viewed on 2 April 2012, <http://www.cbb.gov.bh/page-p-statistical_bulletin.htm>
- Central Bank of Oman Quarterly Bulletin 2004, *Quarterly Bulletin*, Central Bank of Oman Publications, viewed on 4 April 2012, <<http://www.cbo-oman.org>>
- Central Bank of Oman Quarterly Bulletin 2005, *Quarterly Bulletin*, Central Bank of Oman Publications, viewed on 4 April 2012, <<http://www.cbo-oman.org>>
- Central Bank of Oman Quarterly Bulletin 2006, *Quarterly Bulletin*, Central Bank of Oman Publications, viewed on 4 April 2012, <<http://www.cbo-oman.org>>
- Qatar Central Bank Quarterly Statistical Bulletin 2004, *Quarterly Statistical Bulletin*, Qatar Central Bank Publications, viewed on 2 April 2012, <<http://www.qcb.gov.qa/sitelists/QuarterlyStatisticalBulletins/Quarterly%20Statistical%20Bulletins/Attachments/35/QB%20December%202004.pdf>>
- Qatar Central Bank Quarterly Statistical Bulletin 2005, *Quarterly Statistical Bulletin*, Qatar Central Bank Publications, viewed on 2 April 2012, <<http://www.qcb.gov.qa/sitelists/QuarterlyStatisticalBulletins/Quarterly%20Statistical%20Bulletins/Attachments/26/200512.pdf>>
- Qatar Central Bank Quarterly Statistical Bulletin 2006, *Quarterly Statistical Bulletin*, Qatar Central Bank Publications, viewed on 3 April 2012, <<http://www.qcb.gov.qa/sitelists/QuarterlyStatisticalBulletins/Quarterly%20Statistical%20Bulletins/Attachments/22/200612.pdf>>