Testing the Weak-Form Market Efficiency in the Egyptian Stock Market: A Test on the Efficiency of Mutual Funds and Banking Sector's Individual Stocks

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Synopsis

The purpose of the present study is to test the weak-form market efficiency in the Egyptian Stock Market by examining, for the first time, the behavior of individual stocks returns in a particular sector, namely the banking sector and compares its stock behavior to the market return as a whole by examining the Egyptian Stock Market Price Index (EGX100) over the period from 2006 to 2010 using, also for the first time, ARMA model.

The study tests the efficiency of the market in pricing securities. In addition, The research investigates the relationship between returns and the conditional volatility of time-varying, the impact of price limits on the daily price changes, on the efficiency of the market, and the effectiveness of price limits in meeting the objective of dampening fluctuations in the market.

Moreover, this study aims at examining if the efficient market hypothesis (EMH) applies to the Egyptian Mutual Fund sector, and thereby determine whether mutual funds in Egypt beat the market or not (i.e. whether it is possible to beat the market by investing in mutual funds).

The research found evidence of significant departure from the efficient market hypothesis. Although the market is inefficient, the possibility of realizing profit using the serial correlation in prices is eliminated due to the presence of high transactions costs. The introduction of circuit breakers in the form of symmetric price limits on individual shares is found to

تهدف الدراسة إلى اختبار الصيغة الضعيفة لفرض كفاءة السوق فى البورصة المصرية من خلال اختبار سلوك عائدات الأسهم الفردية فى القطاع المصرفى للمرة الأولى ومقارنه سلوك أسهمه بالنسبة إلى عائدات السوق ممثلاً فى مؤشر البورصة المصرية EGX100 فى الفترة الزمنية من ٢٠٠٦ إلى ٢٠١٠، حيث تم استخدام نموذج أرما للمرة الأولى أيضاً.

تختبر الدراسة كفاءة السوق فى تسعير الأوراق المالية. كما تهدف الدراسة إلى البحث عن العلاقة بين العوائد والتطاير الشرطى للتغاير عبر الزمن، وتأثير الحدود السعرية فى نطاق التغير اليومى فى الأسعار فى كفاءة السوق، وكفاءة الحدود السعرية فى قمع تقلبات السوق. بالإضافة إلى ذلك، تهدف الدراسة إلى فحص مدى انطباق فرضية كفاءة السوق على صناديق الإستثمار المصرية، ومن هنا يتم تحديد ما إذا كان من المحتمل لها أن تتفوق على السوق أم لا.

توصلت الدراسة إلى أن البورصة المصرية غير كفؤة على المستوى الضعيف، علاوة على انه على الرغم من عدم كفاءة السوق، فان احتمالية تحقيق أرباح جراء إستخدام الارتباط السلسلى فى الأسعار تعتبر محدودة بسبب ارتفاع تكلفة المعاملات. إن وجود اليات إيقاف التداول فى صورة الحدود السعرية للأسهم وجد انه يزيد من الارتباط

increase the serial correlation of returns, thus contributing to the inefficiency in the market. The tests for the performance of mutual funds showed that mutual funds in Egypt were unable to outperform a passive market strategy.

The findings of this paper has impact on possibility of realizing profit by predicting future returns in the Egyptian Stock Market, the impact on stock pricing and the use of technical and fundamental analysis; concerning market efficiency. On the other hand, has impact on investment strategy and investment manager; concerning mutual funds.

Key Words: Market Efficiency, Circuit Breakers, Mutual Funds, Egyptian Stock Market.

اختبار فرضية المستوى الضعيف لكفاءة السوق فى البورصة المصرية: فحص كفاءة صناديق الاستثمار والأسهم الفردية فى القطاع المصرفى

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السلسلى للعوائد وبالتالى يسهم فى عدم كفاءة السوق. إن اختبار اداء صناديق الاستثمار تظهر ان صناديق الاستثمار فى مصر كانت غير قادرة على ان تتفوق على اداء السوق.

إن نتائج الدراسة لها اثر فى مدى احتمالية زيادة الأرباح عن طريق التنبؤ بألارباح المستقبلية فى سوق البورصة المصرية، التأثير على اسعار الأسهم، واسخدام التحليل الفنى والاساسى، هذا فيما يخص كفاءة السوق. والتأثير على استراتيجيات الاستثمار واداء مديرى الاستثمار، فيما يتعلق بصناديق الاستثمار.

كلمات رئيسية:

كفاءة السوق، صناديق الاستثمار، ايقاف التداول، البورصة المصرية.

1. INTRODUCTION

The market is said to be informationally efficient if "prices always fully reflect available information" (Fama, 1970). There are three necessary, but not sufficient, conditions for the market to be efficient. These conditions are: (i) absence of transaction costs in trading securities; (ii) full knowledge of the available information in the market by market players; and (iii) consensus by all participants on the implications of the current available information on future prices of securities. In reality, the efficient market described above does not exist, due to the asymmetric information available to different participants (Fama, 1970).

Associated with different types of information available to the market, there are three different types of market efficiency: weak-form efficiency, semi-strong-form efficiency, and strong-form efficiency (Campbell et al., 1997).

A weak-form efficient market, which this paper focuses, exists if all information available to the market through historical prices is fully reflected on the current market prices. Therefore, an investor operating in the market can not realize profits on the basis of information about past prices. Weak-form efficiency tests

investigate the claim that successive prices and hence returns, generated by a weak-form efficient market, will be independent. In other words, in such an efficient market future prices cannot be predicted using historical prices, which in turn mean that new information made available to the market, is immediately reflected on prices.

In the intervening time, the efficient market hypothesis remains a significant area of interest and its significance increases when emerging markets are considered in the search for exploitable opportunities within these markets.

Notwithstanding these stylized facts, the Egyptian Stock Market has received little attention in the finance and economics literature on; this paper attempts to partly fill this gap by examining the behavior of individual stocks returns in the banking sector.

Egyptian mutual funds behavior will be examined also on an individual due to its key role in capital market.

The rest of the paper is organized as follows. Section ٢ presents the Egyptian stock market; Section ٣ provides an overview of the relevant literature. Section ٤ presents objective of the study, section ٥ presents questions of the study, section ٦ presents Importance of the Study, section ٧ presents limitations of the study, section 8 presents testing market efficiency using banking sector, and section ٩ presents mutual funds' performance. The article ends with a conclusion, implications of the results, recommendations, and future research.

2. The Egyptian Stock Market

Egypt has a long and rich history of financial markets. By the late 1800s, Egypt had a sophisticated financial structure including a mature stock exchange in both Alexandria and Cairo

(Wilson, 1995). The Egyptian stock market has experienced fundamental changes during four major periods from 1888-1958, 1959-1971, 1972-1992, and 1992-present. In the earliest phase, the market was active and growing at a remarkable rate.

Table (1) in the Appendix, presents some indicators illustrating Egyptian Stock Market performance over the period from 2003 to 2011, showing remarkable activity.

The Egyptian exchange has several indices that track its performance, EGX30, EGX70, EGX100 (Al-Jafari, Altaee, 2011). EGX100 tracks the performance of the 100 active companies, including both the 30 constituent-companies of EGX30 Index and the 70 constituent-companies of EGX70 Index. EGX100 index was retroactively computed as of 1 January 2006.

EGX100 Index avoids concentration on one industry and therefore has a good representation of the various industries (sectors) in the economy. EGX100 Index constituents are reviewed twice a year, whereby constituents are changed (added or deleted), if necessary, based on their activity and liquidity; including the number of executed transactions and the number of trading days.

3. LITRATURE REVIEW

3.1 Market Efficiency

Early formal research about market efficiency dates back to the 1950s. Ever since, the concept of market efficiency gained a lot of interest and popularity that the literature now is so vast and impossible to include in a single review, as correctly indicated by Fama (1991): "The literature is now so large that a full review is impossible". Therefore, the main work about market efficiency especially that of particular interest to the purpose of this research is included (Azab, 2002).

Maurice Kendall (1953), the forerunner of the studies about Market Efficiency, examined the behavior of British industrial share prices and cotton spot prices in NYSE and Wheat spot prices in CHX. He concluded that stock returns tend to be independent of past returns (Fama, 1970).

Market is said to be efficient with respect to an information set if the price 'fully reflects' that information set (Fama, 1970), i.e. if the price would be unaffected by revealing the information set to all market participants (Malkiel, 1992).

Fama (1970) identifies three types of markets based on three different sets of information:

• **Weak-form efficient**, in its weak form the hypothesis states that current prices fully reflect all information contained in historical prices. The weak form tests are tests concerned with whether all information regarding historical prices is fully reflected in current prices (Fama 1970). In a later paper Fama (1991) broadened his definition of the weak form tests to include all tests that test the return predictability. If the weak form hypothesis is true technical analysis cannot be effective in creating higher returns than the market on average (Malkiel 1985);

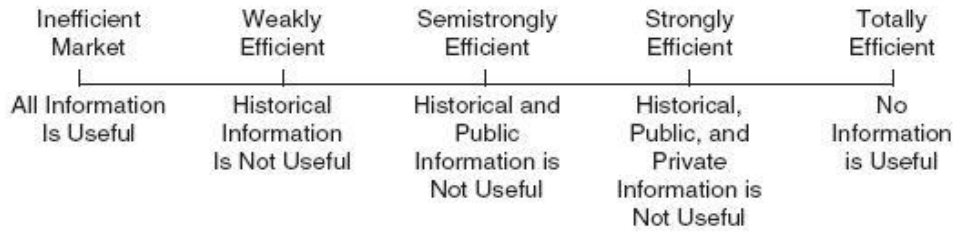
• **Semi-strong-form efficient**, the semi strong version of the hypothesis states that current prices fully reflect all publicly available information (including historical prices and everything else contained in the information set for the weak form test). Consequently semi strong tests are tests that investigate if the information set containing all public information is fully reflected in the current prices (Fama 1970). If the semi strong form of the hypothesis holds true neither technical nor fundamental analysis may create excess return compared to the market or a buy-and-hold strategy (Malkiel 1985);

• **Strong-form efficient**, in the strongest form the hypothesis states that current prices fully reflect all available information, public and private. Strong form tests therefore investigate whether anyone at all can make excess profit (Elton et al., 2007). If this level of the hypothesis is true it would mean that everyone has access to what we normally call insider information. This form of the hypothesis is highly unlikely to be true as there are strict regulations concerning

what information may be made publicly available. Fama himself points out that 'One would not expect such an extreme model to be an exact description of the world, and it is probably best viewed as a benchmark against which the importance of deviations from market efficiency could be judged' (Fama 1970).

Figure 1 illustrates degrees of efficiency in the stock market. If the market is totally inefficient, all information is useful. You know that the market is not totally inefficient because none of the analysts and investors who analyze information has been able to consistently earn returns in excess of the market averages. Thus the question remains about how efficient the market is in processing information between the extremes of all and none, namely, historical, public, and private information.

Figure (1): Degrees of Efficiency in the Stock Market



Source: the researcher

In addition, Fama (1970) departs from the earlier assumption that securities' prices follow a random walk and suggests that they tend to follow a "sub martingale". That is, instead of the restrictive assumption that securities prices and returns are serially independent and identically distributed, he assumes that prices follow a "Random Walk with a Drift" so that, on the long run, securities returns tend to move upward; indicating a positive long-term return. In probability theory, a martingale is a model of a fair game where knowledge of past events never helps predict the mean of the

future winnings. In particular, a martingale is a sequence of random variables (i.e., a stochastic process) for which, at a particular time in the realized sequence, the expectation of the next value in the sequence is equal to the present observed value even given knowledge of all prior observed values at a current time. A discrete-time sub martingale is a sequence $\mathbf{X_1, X_2, X_3,\ldots}$of integrable random variables satisfying $\mathbf{E\,[X_{n+1}|X_1,\ldots, X_n] \geq X_n}$.

Consequently, Fama (1970) argues that if stock prices follow the above mentioned pattern, a submartingale, then no trading rule based on the information set Φ can outperform a "Buy-and-Hold" strategy (Azab, 2002).

If financial markets are not efficient, then strategies would exist that can systematically earn above normal or below normal returns, referred to as abnormal returns. However, in order to actually calculate any abnormal return for any given asset, we first need some Asset Pricing Model such as the APT or CAPM that gives us an estimate or idea of what the normal or expected return to that asset should have been.

Abnormal Return = Actual Return observed – Expected Return (1)

The expected or normal return of the asset is based on: (1) the stock's level of risk and (2) what actually happened with the relevant systematic or macroeconomic source(s) of risk. For example, in the CAPM world, if the overall market goes down, the stock under investigation would likely also have gone down in price.

Michael (2013) aimed at undertaking a comparative analysis of the levels of efficiencies in capital markets in Africa using GARCH model. He Analyzed the data on country and regional averages of the value of traded shares as a percentage of market capitalization (stock turnover ratio)

from Nigeria, Ghana, Kenya, South Africa (Sub-Saharan Africa), Egypt and Tunisia (North Africa), showed that the capital markets of these countries evidence efficiency with each country differing from the other on the degree of efficiency. Findings show that the South African capital market is more efficient than the Egyptian capital market, itself more efficient than the Nigerian capital market which itself also more efficient than the capital markets of Tunisia, Ghana and Kenya. To improve on the efficiencies of these markets, capital market policy makers in each country should minimize stock transaction costs to increase stock market activity and stock turnover.

Al-Jafariand Altaee (2011) aimed at investigating whether prices in Egypt emerging equity market follow a random walk process as stated by the efficient market hypothesis. Therefore, his study examines the weak-form of market efficiency in Egypt Stock Market by testing the random walk hypothesis (RWH) through GARCH model on the daily price of EGX30 index of Egypt equity market. The empirical results reject the RWH at the weak-form level, indicating that stock prices do not fully reflect all historical information.

Azab (2002) aimed at exploring the effect of information on the performance of the stock market in Egypt in accordance with the efficient market hypothesis using GARCH. The tests for market efficiency showed a departure from the "Semi-Strong from "efficient markets indicating that publicly available information might have not been "fully reflected" in securities prices and suggesting the existence of mispricing opportunities that could have been used to achieve abnormal returns.

Mecagni and Sourial (1999) examined the behavior of stock returns in Egyptian Stock Exchange (ESE), market efficiency, and the relationship between returns and

conditional volatility, using GARCH(p,q)-M models. They found that ESE stock returns are serially correlated, implying deviation from market efficiency in pricing securities. They suggest a number of factors that influence the processing of new information that might cause inefficiency in the market, such as trading frictions and timely disclosure and dissemination of information to the public on the performance of listed companies. In addition, their research supports the existence of a positive and significant link between conditional volatility measures and ESE stock returns.

Moursi (1999) aimed at modeling the behavior of the volatility of stock returns in Egypt and analyze the economic and financial implications of that behavior, using volatility-switching GARCH model to shed light on the behavior of returns and stock market volatility. The findings show that institutional and operational aspects of market microstructure, such as non-synchronous trading, bid-ask spread, asymmetric information among traders and impediments to market transparency, restrain the ability of traders to make predictions. Moreover, these impediments can have significant impact on influential traders affecting risk aversion tendencies and thus deepening the extent to which past volatility shocks feed into future volatility and its impact on market returns. The empirical results suggest a significant negative risk-return relationship, where more risky stocks are not associated with higher expected return. This can be explained by the reversions in conditional volatility that catch market traders by surprise, are responsible for the negative time-varying risk premium coefficient estimate.

Asal (1998) investigated the efficiency of the Egyptian stock market using GARCH model. The paper is concerned with the weak form test of the efficient market

hypothesis. Asal (1998) urged that if the evidence fails to pass the weak form test, there is no reason to examine strong forms before declaring the market inefficient on such evidence. The results showed that the market was inefficient.

Similarly, El-Brian and Kumar (1995) examined the degree to which equity markets in six Middle Eastern countries, namely Egypt, Iran, Jordan, Morocco, Tunisia and Turkey are efficient in pricing securities. They used daily and monthly data for stock indices of the two most active stock markets in the Middle East (Jordan and Turkey) and tested for the efficient market hypothesis through serial correlation analysis of returns and on the non-parametric "runs" techniques. The results for the daily data set indicate the presence of serial dependence among the day-to-day price changes in the stock markets in these countries, and the random walk does not hold, i.e. price changes are dependent. Although with monthly data there is evidence of serial correlation, the pattern is different, where higher order coefficients are significant.

3.2 Testing Efficiency for Mutual Funds Performance

Every investor tries to beat the market by achieving returns on the portfolio that are higher than those achieved by the overall stock market. Normally, investors who have highly diversified portfolios earn returns that are very close to the average of the stock markets over the long run. Given the inherent risk of investing in equities, it is possible for investors to achieve unexpectedly high returns or lose everything on a year-to-year basis. To minimize such fluctuations, individuals and institutional investors rely on mutual funds to diversify their holdings. The efficient market hypothesis maintains that active investment management is pointless. Rather, an investor is better off deploying a passive

investment strategy by utilizing a market index alternative. However, the existence of a significant mutual fund industry illustrates a belief to the contrary (Varamini, Kalash, 2013).

Examining the returns of mutual funds on investments in different types of stocks is a particularly appealing way to test for differences in market efficiency. A finding that mutual funds earn larger abnormal returns on growth stocks than value stocks for example, suggests that growth stocks are less efficiently priced than value stocks. Unlike most tests of efficiency, which see whether specific pieces of information are incorporated into prices, a comparison of mutual fund returns tests whether all of the myriad pieces of information that clever and hardworking fund analysts can uncover are incorporated in prices.

The efficient market hypothesis maintains that the active investment management is pointless. Rather, an investor is better off deploying a passive investment strategy by utilizing a market index alternative. However, the existence of a significant mutual fund industry illustrates a belief to the contrary.

Analyzing of mutual fund performance is not a new area. Over forty years ago, Sharpe (1966) outlined methodologies to examine mutual fund performance within the context of three closely related areas: portfolio, selection, CAPM, and the general behavior of stock market prices.

Portfolio selection theory defines the roles of three market participants: the portfolio analyst, the security analyst, and the investor. Works by Markowitz (1955), Sharpe (1963), and Fama (1965) outline market taxonomy. The portfolio analyst estimates anticipated results through expected portfolio performance -and its underlying risk– and selects the most efficient portfolio. The

security analyst predicts the performance of individual securities (within the portfolio) including the relationships between different securities. The investor, presented within array of efficient portfolios must then factor in his risk profile in selecting the portfolio that optimizes the combination of risk and expected returns. Sharpe maintains that the performance of mutual funds can vary because of risk. This risk can either be a high-risk strategy that did not succeed; or, just poor execution by the manager (who is both portfolio and security analyst.)

CAPM, Sharpe (1964), defines a perfect market whereby participants use information to form their own portfolios that incorporate desired returns against risk. The general behavior of stock market prices concerns the theory of random walks. Fama (1965), which maintains that past performance of a security prices has no value in predicting its future price. Furthermore, in order to outperform the market, it is necessary to assume greater risk – whether by design or by accident.

Varamini and Kalash (2013) aimed to use the Sharpe Ratio to test the efficient market hypothesis for different market capitalization and investment styles of mutual funds in the US. The results of the study for the entire period of 1994-2007 as well as the two sub-periods (1994-1999 and 2000-2007) indicate that small cap funds have provided the highest risk-adjusted return for the entire period whereas growth funds have exhibited lower returns. The findings, therefore, suggest that the mutual funds market is not always efficient, which makes it possible for an investor or a mutual fund manager to earn excess return on a risk-adjusted basis.

3.3 Summary of Literature Review

Studies reviewed in this section investigated the behavior of stock returns in developed and

emerging markets. In examining market efficiency, especially in emerging markets, they were found to be inefficient since returns are serially correlated, realizing a degree of predictability of future returns.

In the light of the statistical behavior of stock returns described above, various studies have empirically assessed the risk-return relationship. According to portfolio theory, the relationship between expected return and volatility is expected to be positive. However, several researches illustrated the time-varying characteristic of volatility and thus its relation with expected return. Therefore, several authors suggested that along with a positive relationship, an inverse relationship between risk and return is also possible. If the future seems risky, investors will require a higher risk premium and vice versa. An issue of importance in studying the impact of volatility on returns is the persistence of a volatility shock, which measures the lifetime of the shock after which it decays. From the literature reviewed the volatility persistence was found to depend on institutional, operational aspects of the market, and transparency.

For the first time, this study tries to test efficiency of mutual funds sector as well as the market efficiency in a sectoral level in Egypt.

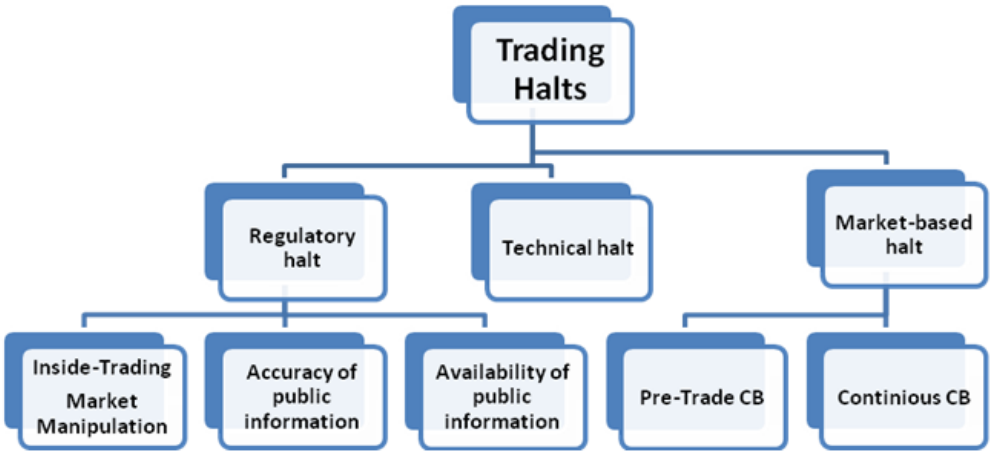
Furthermore, previous literature did not take into consideration Circuit breakers, that is a technique widely used to dampen fluctuations in stock market prices taking the form of either a price limit or trade halts. Circuit breakers refer to any of the measures used by stock exchanges during large sell-offs to avert panic selling. Circuit breakers sometimes called a "collar."

Circuit breakers is a mechanism to restrict program trading on an exchange for a specified period of time when the market moves up or down by a large number of points during a

trading day. This mechanism was put in place after program trading was blamed for the US crash of 1987, a.k.a. Black Monday. The ideas is that circuit breakers will limit market damage by restricting trading activities that might lead to greater volatility and encourage those that lead to greater stabilization. Although circuit breakers are triggered by upward movements in the market, in recent times, most have been triggered by downward market movements.

In general, trading halts could be classified into the following three categories: regulatory halts, technical halts and market-based halt as illustrated in Figure 2.

Figure (2): Characterization of Trading Halts



Source: Gomber et al., 2012

In addition, we investigate the impact of price limits on the daily price changes, on the efficiency of the market, and the effectiveness of price limits in meeting the objective of dampening fluctuations in the market.

Over and above, while all previous researches either in the developed or the developing markets used GARCH model, for the first time, this study use ARMA model in estimating and forecasting first differences values for the nine banks daily stock prices. Zhuanxin

(2013), Badescu et al. (2013), Karanasos et al. (2004) and Nelson (1991) claim that GARCH models have three major drawbacks in asset pricing applications:

(i) Some researchers found a negative correlation between current returns and future returns volatility. GARCH models rule out this possibility by assumption.

(ii) GARCH models impose parameter restrictions that restrict the dynamics of the conditional variance process.

(iii) Interpreting whether shocks to conditional variance persist or not is difficult in GARCH models, taking the sum of α_j and β_i indicate persistence of the shock, but it does not specify the duration over which the volatility shock will persist. In light of these limitations, the author suggests an alternative model that takes into consideration these drawbacks, that is the ARMA (p,q) models, which does not put restrictions on the sign of the risk parameter. ARMA (autoregressive moving average) provide a parsimonious description of a stationary stochastic process in terms of two polynomials, one for the auto-regression and the second for the moving average.

4. Objective of the Study

Notwithstanding being a long-established market, the local stock market has received little attention in the finance and economics literature on Egypt; this paper attempts to partly fill this gap.

The purpose of the study is to examine the behavior of individual stocks returns in a particular sector, namely the banking sector, due to the crucial key role Egyptian banks play in the development process of Egypt and being the oldest and largest in the region, and compares its stock behavior to the market return as a whole by examining the

Egyptian Stock Market Index (EGX 100). The use of individual stock returns allows to study the behavior of these stocks avoiding the effect of averaging, a limitation which arises in using aggregate indices, which makes an index behave more systematically than its components (El-Brian and Kumar, 1995).

Moreover, the study aims at examining if the efficient market hypothesis applies to the Egyptian Mutual Fund sector, and thereby determine whether mutual funds in Egypt beat the market or not (i.e. whether it is possible to beat the market by investing in mutual funds).

5. Questions of the Study

The study tries to discuss the following questions:-

- Is the Egyptian Stock Market consistent with portfolio theory in terms of risk-return relationship?
- To what degree is the market efficient in pricing securities?
- If the market is inefficient, then can profit be realized by taking advantage of the serial correlation in prices?
- What is the impact of price limits on the daily price changes, on the efficiency of the market, and are price limits effective?
- Is the efficient market hypothesis applies to the Egyptian Mutual Fund sector?
- Is it possible to beat the market by investing in mutual funds?
- Were Egyptian Mutual Funds successful in locating and profiting from mispricing opportunities in the form of abnormal returns?

6. Hypothesis of the Study

The hypotheses of the Study are as follows:-

- The efficient market hypothesis applies to the Egyptian banking sector's individual stocks returns

- The efficient market hypothesis applies to the Egyptian Mutual Fund sector

7. Importance of the Study

The following are the reasons why market efficiency is a critical issue and concept:

1. It affects the price that the firm will receive for launching any new stocks. Also, if a firm can sell new stock that is overvalued, it is perhaps likely to do such.
2. It affects the cost of capital or required rate of return on securities. The cost of capital affects the capital budgeting or new capital expenditure decisions.
3. If stock holders want to link management compensation to stock price or shareholder value, then it is especially important that the stock price be representative of the true value of the firm, i.e., stockholders want a stock price that is fair and unbiased.
4. An asset's price should be driven by unbiased estimates of future cash flows and the true systematic risk associated with the cash flows. If this were not the case, investors would be able to earn returns that are inconsistent with the true level of risk of an asset. Portfolio managers are very interested in any mispricing in the stock market. A mispriced stock would be thought of as cash lying in the street waiting for someone to pick it up.

8. Limitations of the Study

Mutual funds in Egypt are relatively new with short history of performance. Within the Egyptian market, comprehensive information about fund's performance is considered a privilege to certificate holders with the duty of the funds only to provide periodic reports to the monitoring body (The Egyptian Financial Supervisory Authority-

EFSA). Therefore, and as a matter of market practice, only Net Asset Values (NAV) are publicly available on a weekly basis.

The unavailability of a bond index within the Egyptian market, due to the immature nature of the debt market, introduced a difficulty to use a multifactor model to assess the performance of mixed funds that include debt instruments, in addition to equities, in their portfolios composition. Hence, the performance of mutual funds was merely evaluated against a stock index (EGX100).

For the same reason, we excluded money market mutual funds as it invests exclusively in short-term debt securities such as T. bills, CD's, Time Deposits, repurchase agreements and commercial papers. Thus money market funds' portfolios constituents are related to money market; not capital market that we investigate its efficiency.

9. Testing Market Efficiency using Banking Sector:

9.1 Sample of the study:

The Banking industry in Egypt is among the oldest and largest in the region. The Egyptian banking sector plays a crucial role in the development process. Deepening this sector and its reform would lead to higher rates of economic growth. This mechanism is achieved mainly through the role of the banking sector in mobilizing more savings and channeling them to better investment allocation. This, in turn, would lead to higher productivity and more capital accumulation. To achieve these results, an efficient banking system, prudential controls and a friendly, non-distorted macroeconomic framework are required.

9.2 Data Description:

Recent economic reforms in Egypt have significantly improved its macroeconomic indicators and financial sector. Banks have witnessed significant merger and

acquisition activity as a result of these reforms in attempts to privatize and strengthen the banking sector. This merger laid its shed via decreasing the 32 banks that were listed in the Egyptian Stock Exchange in 2000 to reach 9 banks by the end of 2011. These banks are namely the following: Al Baraka Bank Egypt, Abu Dhabi Islamic Bank- Egypt, Commercial International Bank - Egypt (CIB), Credit Agricole Egypt, El Watany Bank of Egypt, Faisal Islamic Bank of Egypt - In US Dollars, National Societe Generale Bank (NSGB), Suez Canal Bank, Union National Bank - Egypt "UNB-E".

To further investigate the sensitivity of our results to different data sets, we use returns on market index as well. Thus, we use EGX100.

The data set, which is comprised of Egyptian banks and EGX100 market index daily stock prices, obtained from the Egypt for Information Dissemination (egID) database. Our 9 banks data set extends over the period from Jan.1st 2006 to Dec.31st 2010, which includes daily observations on stock prices. While the daily prices reported for EGX100 are provided for the same period. The prices referred to are the closing prices of banks' stocks, where the closing price is defined to be the weighted average of the value of transactions that took place for the prevailing prices at the time, such that the number of traded stocks is not less than 100 securities; otherwise, the traded stocks of the day will not affect the closing price of the previous day. The closing prices used are adjusted for all corporate actions, which include adjustments for capital increase, stock splits and dividend payment.

In order to calculate the average transaction cost for each bank, we take the difference between the bid and ask prices expressed as a percentage of the ask price. To judge if the investor ends up with profits due to serial

correlation in prices, we compare the calculated average transaction cost with the average expected return for each individual bank. If the average transaction cost is higher than the average expected returns, then the investor does not realize profits. While if the average transaction cost is lower than average expected return, then the investor realizes profits.

Using the closing prices available for individual bank stocks and the market index, we calculate the daily return. Stock market returns are defined as continuously compounded returns at time t, calculated as the natural log difference in the closing bank price between two different time periods (Campbell et al., 1997). The stock return is presented by Equation

$$\mathbf{r_t = \ln (P_t) - \ln (P_{t-1})} \qquad (2)$$

Where:

r_t= continuously compounded return on the individual bank stock at period t;

$\ln (P_t)$ = natural logarithm of the individual bank stock price at period t; and

$\ln (P_{t-1})$= natural logarithm of the individual bank stock price at period t-1 or lagged by one period.

For illustrative purposes, Figures 4, 7, 10, 13, 16, 19, 22, 25 and 28, in the appendix, depict the pattern of daily continuously compounded returns of the five most actively traded banks and the market index. From figures 4, 7, 10, 13, 16, 19, 22, 25 and 28 in the appendix, there is prima facie evidence of volatility clustering, implying that large returns (of either sign) tend to be followed by more large returns (of either sign).

Descriptive statistics of the stock returns of our sample of Egyptian banks and market index are represented in Table 42 in the appendix. The sample banks show positive mean return, where NSGB has the highest mean return among the 9 banks followed by Suez Canal

Bank, Faisal Islamic Bank of Egypt - In US Dollars, El Watany Bank of Egypt, "UNB-E", Credit Agricole Egypt, CIB, Abu Dhabi Islamic Bank- Egypt, and Al Baraka Bank-Egypt with the lowest mean return among the 9 banks, while EGX100 has a positive mean, thus the highest return of our data set. Median returns for the 9 banks almost follow the same order of the mean. As for volatility or the standard deviation, we can see from Table 42 in the appendix that Suez Canal Bank and NSGB have the highest volatility followed by El Watany Bank of Egypt, Faisal Islamic Bank of Egypt - In US Dollars, "UNB-E", Credit Agricole Egypt, CIB, Abu Dhabi Islamic Bank- Egypt and then Al Baraka Bank-Egypt with the lowest risk among the sample of banks studied. Since the market portfolio (EGX100) is diversified, it has the lowest volatility compared to the banks sample. From the above ranking of the mean and standard deviation of the data set of banks, we find that NSGB has the highest return and a high risk, while finally Al Baraka Bank-Egypt has the lowest return and a lowest level risk relative to the risk displayed by our sample. This is in accordance with the portfolio theory, where the higher the return, the higher the risk the investor bears, which indicates that investors are compensated for beating risk.

Examining the nine banks and EGX100 they exhibit positive skewness. Various studies such as Bekaert et al. (1998), Moursi (1999) and Mecagni and Sourial (1999) show that emerging stock markets in general and the Egyptian Stock Exchange in particular have positively skewed returns, where our results agree with this conclusion.

To use ARMA(p,q), data must be normally distributed. Although the daily stock prices is not normally distributed, the first differences values for the 9 banks daily stock prices follows normal

distribution. So, we will use first differences values for the 9 banks daily stock prices and EGX100 index to run ARMA(p,q) models.

Moreover, the first differences values for the 9 banks and EGX100 index accept the null hypothesis of Jarque-Bera test for normality, implying that the series of the first differences values are normally distributed.

9.3 Model and Methodology

The unit root tests is used to confirm the results of the estimates of the correlation functions (ACF) & (PACF) for the time series and to confirm the stationary of the time series that's because the ARMA(p,q) model can be used only when the data are stationary. We will employ two tests for the root unit test as follows to confirm the stationary of the time series:

9.3.1. Unit Root tests

9.3.1.1The Augmented Dickey-Fuller (ADF) Test

Dicky and Fuler (1981) test the null hypothesis, which is the existence of unit root (non-stationary) versus the stationary of the linear direction in the time series Y_t by the Estimate of the following formula

$$Y_t = \rho Y_{t-1} + x_t \delta + \varepsilon_t \quad (3)$$

Where the statistical assumptions for this test are as follows:

$H_0 : \rho = 1$ Series non stationary (by unit root)

$H_0 : \rho < 1 \; or \; |\rho| \geq 1$ Series stationary (no unit root)

But if the parameter is greater than the unit, then the series is non-stationary as this will mean that the variance of the time series is increasing with time to infinity and by transforming the formula (3) to the following:

$$\Delta Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \alpha_2 t + \sum_{j=1}^{p} \gamma_j \Delta Y_{t-j} + \varepsilon_t \quad (4)$$

Where: ΔY_t represents the first differences of the time

series, α_0 is constant, t is the time, ΔY_{t-j} are the lagged of the first differences of the dependent variable Y_t. The problem of serial correlation in appreciation could be treated by adding the lagged values of the first differences of the dependent variable ΔY_{t-j} as independent variables because they lead to transform the series of residuals to stationary series of the type $WN(0,\sigma^2)$ without affecting the statistics distribution. According to the formula (4) we can write the null hypothesis H_0 and the alternative hypothesis H_1 as follows:

$$H_0 : \alpha = 0 \ , \ H_1 : \alpha < 0$$

Where: $\alpha = \rho - 1$

The t statistic (which is also called τ Tau) shall be adjusted by the following formula:

$$t_\alpha = \hat{\alpha} / (se(\hat{\alpha}))$$

Where: $\hat{\alpha}$ the estimated parameter, $se(\hat{\alpha})$ the estimated of the parameter of standard error.

9.3.1.2 The Phillips-Perron (PP) Test

The (PP) tests the null hypothesis: the presence of unit root against the stationary of linear trend too, but by employing non parametric test of the non-augmented Dickey-Fuller formula, which the lagged values of the first differences of the dependent variable are not added to it as explained variables, thus the autocorrelation is treated alternatively, specifically by adjusting the t-ratio of the parameter α even the serial correlation doesn't affect the asymptotic distribution of the test statistic. Stock (1994) also decides that the Phillips-Perron (PP) test is preferred for the Augmented Dickey-Fuller (ADF) test because it takes into consideration the possibility of errors stemming from the instability of the variance in the used estimation where it could be correct standard errors of the estimated parameters by using the Automatic positive semi definite

HAC covariance matrix of Newey-West.

9.3.2 Autoregressive - Moving Average Models (ARMA)

The model ARMA (p, q) of the observed time series could be expressed $\{ Y_1, Y_2, ..., Y_{n-1}, Y_n \}$ as follows:

$$Y_t = \delta + g_1 Y_{t-1} + g_2 Y_{t-2} + ... + g_p Y_{t-p} + \varepsilon_t - \theta_1 \varepsilon_{t-1} - \theta_2 \varepsilon_{t-2}, ..., \theta_q \varepsilon_{t-q} \quad (5)$$

And the previous model could be summarized as the following formula:

$$g_p(B) Y_t = \delta + \theta_q(B) \varepsilon_t \quad (6)$$

Where:

$$g_p(B) = 1 - g_1 B - g_2 B^2 - ... - g_p B^p \quad (7)$$

$$\theta_q(B) = 1 - \theta_1 B - \theta_2 B^2 - ... - \theta_q B^q \quad (8)$$

Where:

P: the number of the lagged periods of the variable under study in the auto regression equation,

q: the number of the lagged periods of the error term in the auto regression equation,

AR (p): the auto regression model of order p,

MA (q): the moving average model of order q,

ε_t: the error term in the model and it represents a series of independent random variables that follow the same probability distribution with a zero mean and constant variance σ^2, which denoted by the symbol $\varepsilon_t \equiv WN(0, \sigma^2)$,

B: the lagged factor where:

$$B^2 Y_t = Y_{t-2}, B^2 \varepsilon_t = \varepsilon_{t-2},$$
$$BY_t = Y_{t-1}, B\varepsilon_t = \varepsilon_{t-1} \text{ ، } (9)$$

δ: Fixed amount represents a level

$g_1, g_2, ..., g_p$: The coefficients of the auto regression

$\theta_1, \theta_2, ..., \theta_q$: The coefficients of the moving average

9.3.3 The study of the significance of ARMA (p, q) model

With regard to the testing of the significant of AR (p) & MA (q) the statistical hypotheses to test the significant of AR (p) are as follows:

$$H_0 : p-value \geq 0.05$$

Then AR (p) not significant

$$H_1 : p-value < 0.05$$

Then AR (p) significant

And so that the statistical hypotheses to test the significant of MA (q) are as follows:

$$H_0 : p-value \geq 0.05$$

Then MA (q) not significant

$$H_1 : p-value < 0.05$$

Then MA (q) significant

We will test these hypotheses at 95% level of significance.

9.3.4 Empirical Results For The 9 Banks and EGX100 Using ARMA(p,q) Model

We will study the statistical characteristics and the order of ARMA model for each group of data for the nine banks and the data of the market index (EGX100) as follows:

9.3.4.1 Statistical properties

Via studying statistical properties of the time series of the first differences values, we find that the value of Skewness coefficient for all of them is near to zero which means that the distribution of the time series for all of them is close to the normal distribution. Also the value of coefficient of kurtosis for all of them is near to 3, a value close to the value of the coefficient of kurtosis of the normal distribution, and to test that the data normally distributed, we use Jarque-Bera test (Jarque et al., 1981) where the statistical assumptions for this test are as follows:

H_0: the data is normally distributed if p-value > 0.05

H_1: the data is not normally distributed if p-value < 0.05. From table 42 in the appendix we find that the p- value of Jarque-Bera coefficient refer to the possibility of accepting the null

hypothesis that the time series of the first differences values of all of them is distributed as normal distribution.

9.3.4.2 The graph of the first differences values

One of the most important characteristics of time series is non-stationary trend or the presence of unit root (Metwally, 2004). According to Engel and Grangr (1987), the use of non-stationary time series in estimating parameters of any relationship regardless of the estimation method used may lead to obtain spurious estimates. Therefore, the data series under consideration must be stationary or close to stationary (Coles, 2001). So, we need to make sure those first differences values for all of them is stationary before estimation and forecasting.

Figures 3, 5, 7, 9, 11, 13, 15, 17, 19 and 21 in the appendix show that the values of the data for all of them deviates from its middle zero. Moreover, because of the first characteristics of stationary time series fluctuates around its middle zero, then it could be concluded that the time series of the first differences values for all of them is stationary.

9.3.4.3 The (ACF) & (PACF)

To confirm the result that obtained from the graph of the first differences values of all of them that the time series is stationary we find each of (ACF) & (PACF) as shown in tables 2, 6, 10, 14, 18, 22, 26, 30, 34 and 38. We conclude that the time series of the first differences values for all of them is stationary and the suggested model to estimate and forecast the values of the time series of the first differences values for all of them is ARMA(1,1). To ensure that the time series of the first differences values for all of them is stationary we apply the unit root tests for (ADF) & (PP) as follows:

9.3.4.4 The Augmented Dickey-Fuller (ADF) & the Phillips-Perron Test.

We will use the unit root tests to confirm the stationary of the time series of the first differences values for all of them. We will employ for the unit root tests, the Augmented Dickey-Fuller (ADF) test, and the Phillips-Perron (PP) test at three different levels of significance at 99%, 95% and 90%.

Tables 3, 4, 7, 8, 11, 12, 15, 16, 19, 20, 23, 24, 27, 28, 31, 32, 35, 36, 39 and 40 in the appendix shows that the time series of the first differences values for all of them is stationary which means that we can use the ARMA (p,q) model to estimate and forecast of values of the time series of the first differences values for all of them.

Tables 5, 9, 13, 17, 21, 25, 29, 33, 37 and 41 and figures 4, 6, 8, 10, 12, 14, 16, 18, 20 and 22 in the appendix shows the results of the estimation of the ARMA(1,1) of the time series of the first differences values for all of them.

Figures 4, 6, 8, 10, 12, 14, 16, 18, 20 and 22 in the appendix show that the residuals of the estimation procedure are also stationary.

Tables 42, 44 and 45 summarize the descriptive statistics, the ARMA (p,q) results and the serial correlation results between the consecutive values of the error term of model ARMA(1,1) for the data of the 9 banks and the EGX100 index and from tables 5, 9, 13, 17, 21, 25, 29, 33, 37 and 41 we find that:

- **R-squared for all of them ranged from 0.4088 to 0.6556**

This means that the model ARMA (1, 1) explains form about 40.88% to about 65.56% of the changes that occur in the dependent variable in this model for all of them.

- **Adjusted R-squared for all of them ranged from 0.3783 to 0.6051**

This means that the model ARMA (1, 1) with a modified version of R-squared, which avoids its disadvantages, explains form about 37.83% to about 60.51% of the changes that occur in the dependent variable in this model for of them.

- **Durbin-Watson stat. for all of them ranged from 2.1135 to 2.5135**

It means that the value of (DW) indicates that there is a weak serial correlation between the consecutive values of the error term of ARMA (1, 1) models for all of the 9 banks but for EGX100 value of (DW) equals to 2.5135 indicate that there is a serial correlation between the consecutive values of the error term of ARMA (1, 1) model for EGX100.

9.3.4.5 Serial Correlation, Circuit Breakers and Market Efficiency

A weak-form efficient market exists if all information available to the market, through historical prices, is fully reflected on the current market prices. Therefore, an investor operating in the market can not realize profits on the basis of information about past prices. Weak-form efficiency investigate the claim that successive prices and hence returns, generated by a weak-form efficient market, will be independent. In other words, in such an efficient market future prices cannot be predicted using historical prices, which in turn mean that new information made available to the market, is immediately reflected on prices. Therefore, the martingale model expresses future stock prices is as follows:

$$E\left[P_{t+1} \mid P_t, P_{t-1}, \ldots\right] = P_t + \mu \quad (10)$$

The model states that the best forecast of tomorrow's price is today's price, given the stock's entire price history, thus the expected excess returns is zero (Copeland and Weston, 1992). The price generating process expressed

is the random walk represented below as follows:

$$P_t = \mu + P_{t-1} + \varepsilon_t \quad (11)$$

Where:

P_t = Current market prices;

μ = Drift term or the expected price change

P_{t-1} = price of the previous period; and

ε_t = Error term, where $\varepsilon_t \sim N(0, \sigma^2)$

The error term in Equation (11) is independent and identically distributed with mean zero and variance σ^2. Another implication of the random walk model is that independent returns have a covariance zero at period's t and t+1. In other words, a return at one period is not related to returns at other periods (Campbell et. al, 1997).

$$Cov [f(rt), g(rt+k)] = 0 \quad (12)$$

To further analyze causes of market inefficiency, if present, we study the impact of the Capital Market Authority imposing price limits, which was introduced to the ESE in February 1997.

The circuit breakers allow stock prices to fluctuate from the closing price of the previous operating day within a range of $\pm 5\%$ daily. Kodres and O'Brien (1994) argue that price limits reduce the risk of future price movements between the time an investor decides to trade and the time the orders are executed. A price limit in this case will provide better risk-sharing between buyers and sellers than unconstrained trade. The study concludes that price limits have welfare properties as it may be pareto-superior to unconstrained trade".

From table (44) and table (45) in the appendix we find that the ARMA(1,1) model estimated the data of the 9 banks and the data of EGX100 is significant and there are a weak serial correlation between the successive error terms for the data of the 9 banks and a serial

correlation between the successive error terms for EGX100, then we can conclude that the data of the 9 banks are efficient and the data of EGX100 is less efficient.

9.4 Conclusion:

We found evidence to reject the Efficient Market Hypothesis, because stock returns are serially correlated. For example, the estimates for Suez Canal Bank suggest that if the share price increased by 1% on a given day, then it would be expected to increase by about 0.24% the following day, ceteris paribus. As expected, limits on stock price changes induce larger serial correlation on succeeding days. For example, if Suez Canal Bank stock returns increased to reach the maximum price change allowed in the market (5 %) on a given day, then it would be expected to increase by about 7.8 % on the following day. However, we found that the presence of high transactions costs largely eliminate the possibility of profits based on these correlations.

This result may be driven by the factors that have been suggested by El-Erian and Kumar (1995) explaining the rejection of efficient market hypothesis among Middle Eastern emerging markets. These factors are: limited provision of information to market participants on corporate developments, inadequate research on listed companies in stock exchanges, and inefficient institutional and operational structures in stock markets. Thus, our results is consistent with Mecagni and Sourial (1999) that the findings conform to the needs for modernization of the stock exchange aimed at improving the efficiency of trading system, and promoting instantaneous information disclosure and dissemination.

The empirical results reflect a positive risk-return relationship for all the banks studied. However,

only Suez Canal Bank shows a statistically significant relationship. This is consistent with studies done on emerging markets, such as Thomas (1995), where the risk-return parameter was positive but not significant.

We found that the imposition of a price limit increases the serial correlation of returns. This finding agrees with literature criticizing the effectiveness of price limit in dampening market fluctuations, arguing that price limits causes volatility spillover over a longer period, distorts the efficiency of the market, and hinders the informational role of prices. Our results prove that the price limit distorts the market, as it reduces the informational role of prices, and increases serial correlation of returns, i.e. increasing market inefficiency. However, the study does not examine the effect of the limit on volatility.

10.Mutual Funds Performance:

10.1 Sample of the study:

The first two stock funds in Egypt were established in 1995, the industry is therefore relatively recent. Mutual funds marketed in Egypt represent a relatively small amount for a country of Egypt's size and population. The Egyptian Investment Management Association (EIMA) expects a significant expansion in mutual funds ownership per capita within the next few years.

10.2 Data Description:

The calculations of the various performance measures for mutual funds were based on the annual returns of the EGX100 and the fund's returns for the period from Jan. 1st, 2006 to Dec. 31st, 2010. Funds returns were calculated based on their Net Asset Values (NAV).

Index returns were obtained from egID. Risk-free interest rates for 91 days Treasury Bills were obtained from the Central Bank of Egypt's Yearly Book.

Performance evaluation was conducted for 64 funds under different fund managers and for which data were available during the test.

10.3 Model and Methodology:

In an attempt to evaluate fund's performance within the Egyptian market, CAPM based evaluation measures were used. Funds' Betas were calculated using an Ordinary Least Squares (OLS) to measure the sensitivity of funds excess returns, over the risk free rate, to the excess returns of the benchmark (Sharpe, et al., 1999).

Jensen (1968) presented pioneer mutual fund market efficiency study. Alpha measure as suggested by Jensen (1968), calculates Funds excess returns, over and above those of the benchmark. Mathematically, an alpha of a fund can be presented as following:

$$\alpha_p = ar_p - [ar_f + \beta_p(ar_M - ar_f)] \quad (13)$$

Where, α_p is the fund excess returns over and above those of the benchmark, ar_p is the average return of the fund over the measurement period, ar_f is the average rate of the risk free security over the measurement period, βp is the sensitivity of the fund excess returns, over the risk free rate, to the excess returns of the benchmark and ar_M is the average market return over the measurement period.

Consequently, positive value for α_p indicates outperformance while a negative value indicates underperformance.

Treynor's coefficient (Reward-to-Volatility) is used to measure the excess return of a fund, over the risk free rate, per unit of systematic risk as suggested by Treynor (1965). Mathematically, the Reward-to-Volatility of a fund can be presented as:

T_p = (Average Return of the Portfolio - Average Return of the

Risk-Free Rate) / Beta of the Portfolio (14)

Hence, it can be seen that, the higher the value of Treynor's coefficient is, the better the performance of the fund will be.

Sharpe's ratio (Reward-to-Variability) measures the average excess returns of a fund, over the average risk free rate, per unit of total risk of the fund as suggested by Sharpe (1966). Mathematically, Sharpe ratio can be shown to be

S_p = (Average Return of the Portfolio - Average Return of the Risk-Free Rate) / Standard Deviation (15)

Similar to Treynor's coefficient, the higher the value of the Sharpe ratio is, the better the performance of the fund will be. However, there's a fundamental difference between Sharpe ratio and both Treynor's coefficient and Jensen's alpha in that in Sharpe's, the excess return is measured relative to total risk while in the other two measures, excess return is measured relative to market risk only.

Therefore, a fund that might show outperformance under Treynor's or Jensen's, might rank inferior under Sharpe's due to high Unique Risk that is not accounted for by the other two measures.

If Jensen's and Treynor's index shows negative value (i.e. poor performance), then, Sharpe's ratio will also show poor performance. We can use Sharpe's ratio to rank funds' portfolios relative to the benchmark and to each other. This study relies on the funds' evaluation relative to the benchmark.

Finally, the Tracking Error (Appraisal Ratio) is used to measure the value of the alpha of the fund relative to its Residual Volatility, as suggested by Treynor and Black (1973).

This measure attempts to evaluate the benefit of concentration a fund was able to achieve by deviating from full

diversification. Mathematically, this can be shown to be:

$A_p = \alpha_p / \sigma_{ep}$ (16)

Where, α_p is the fund excess returns and σ_{ep} is the residual volatility or unique risk of the fund as expressed by its Standard Deviation of the Random Error Term.

Equation (16) illustrates that a positive value would point to an advantage from departing from complete diversification and concentrating more on certain shares. Furthermore, the higher the positive value is, the higher the benefit from concentration and the more successful the fund will be in their securities selection strategy

Fund systematic risk is measured by beta coefficient (Miller, 2001) as follows:-

$$\beta_i = \frac{Cov(X_i, X_m)}{\sigma_m^2} = \frac{\sum_{t=1}^{n}(X_{it} - \bar{X}_i)(X_{mt} - \bar{X}_m)}{\sum_{t=1}^{n}(X_{mt} - \bar{X}_m)^2} \quad (17)$$

Where:-

β_i : The Beta coefficient of mutual fund (i).

$Cov(X_i, X_m)$: Covariance between the return of the mutual fund (i) and the return of the market portfolio (m).

σ_m^2: Variance in market portfolio return.

X_{it}: The return of mutual fund (i) in the period (t).

$\bar{X}_i$: The average returns of fund (i) during the period.

X_{mt}: Market return in the period (t).

$\bar{X}_m$: The average returns of the market portfolio during the period.

10.4 Empirical Results

Table 57 and Graph 23 in the appendix show the summary figures for the measures calculated for the 64 funds analyzed. From the table and the graphs, the following can be observed:

- All funds were defensive relative to the benchmark. This can be seen from their Beta figures, which, in all cases, were less than one.

- This defensive strategy has enabled the funds to achieve less negative returns and less volatility than the benchmark.
- The standard deviation of random error term (residual volatility) figures for the funds indicate departure from full diversification for all funds, which might indicate active management styles in the hope for achieving superior returns.
- Despite the above favorable indicators, none of the funds was able to outperform the benchmark on a Risk-adjusted basis. This can be seen from the values of the various evaluation measures.
- Jensen's Alpha values for all funds were significantly negative ranging from -9.3% for Fund No. 1 to -0.1% for Fund No. 33 indicating funds failure to outperform the benchmark.
- Consequently, the values of appraisal ratio, that is used to measure the quality of a fund's investment picking ability, were negative for all funds signifying that the concentration policy were not profitable and did not result in any excess positive returns to justify the departure from full diversification.
- For Treynor (Reward-to-Volatility) and despite that the benchmark showed positive value of 1.09, the funds showed values ranging from –7.5 for Fund No. 1 to 8.5 for Fund No. 49. This can be seen from Graph (21) where the slopes of all funds lines were lower than the slope of the ex-post Securities Market Line resulting in all funds lying under the ex-post Securities Market Line of the benchmark portfolio.
- Sharpe ratio gave similar results with all funds scoring values ranging from -8.9 for Fund No. 1 to 7.1 for Fund No. 49. This can also be seen from Graph (5.2) where the slopes of all funds lines were lower than the slope

of the ex-post Capital Market Line resulting in all funds lying under the ex-post Capital Market Line of the benchmark portfolio.

- Finally, it should be noted that all the analyses were conducted using the gross returns of funds without accounting for transactions costs or management fees.
- The above evaluation indicates that if the analysis would cater for these costs, the performance will certainly be further aggravated.

10.5 Conclusion:

From the above analysis, a conclusion can be drawn that, on a risk-adjusted basis, none of the evaluated funds was able to outperform the benchmark for the period of the study.

However, it should be noted that one of the main factors that affected the evaluation was the relatively high Risk-free interest rate, which made it difficult for both the benchmark and the funds to achieve satisfactory returns. Also, this conclusion should be considered with caution in the light of the limited data that were utilized to arrive at such a conclusion.

CAPM based performance evaluation measures (Jensen's Alpha, Treynor, Sharpe and Appraisal ratio) were used to assess the performance of 64 mutual funds in Egypt during the period from the beginning of 2006 until the end of 2010, on a risk adjusted basis, relative to a benchmark index EGX100.

The tests showed that all mutual funds were defensive in relation to the benchmark, as indicated by their betas, standard deviation and mean returns. However, all four performance evaluation measures showed significant underperformance of funds returns relative to the benchmark.

Taking into consideration funds' related costs and fees, the underperformance of the funds will be worst.

The overall conclusion is that, in spite of the Egyptian market has a clear departure from Semi-strong efficient market hypothesis; mutual funds were unable to take advantage of the opportunities that might exist and outperform a passive strategy.

One major reason for underperformance might be the relatively high risk-free interest rate within the Egyptian market that favors the banking system as a channel of funds over the stock exchange.

This, probably, made it difficult for funds to produce any significant out performing results.

11. The Impact of the Results

11.1 Market efficiency

11.1.1 Possibility of Realizing Profit by Predicting Future Returns

One of the implications of an inefficient market is the possibility of the investor to realize profits by predicting future returns. However, the transactions costs associated with entry and exit from markets may eliminate any profits made using serial correlation in prices and thus returns. To examine this possibility, we computed average transactions costs and compared them with average expected returns for non-limit and limit days. Transactions costs are computed as the average bid-ask spread, expressed as a percentage of the ask price. Thus, the transactions costs indicate the expected costs of buying and then selling the shares, ignoring brokerage and other fees. As Table (46) indicates these range from about 1.64 % to almost 0.85 %.

The expected return depends on whether the previous day was a

limit day or not. If not, then the previous day return must have been less than 5% and the expected return is thus multiplied by percentage change in price. These figures are shown in column 2 of Table (46). The results show that holding Al Baraka Bank-Egypt stocks, investor can realize a profit by predicting future returns, since on average Al Baraka Bank-Egypt expected returns exceeds the transaction cost. If the previous day did reach a limit, the expected return is multiplied by percentage change in price. These figures are shown in column 3 of Table (46). The results show that holding Al Baraka Bank-Egypt or El Watany Bank of Egypt stocks, investor can realize profits based on the trend on stock prices, since on average Al Baraka Bank-Egypt as well as El Watany Bank of Egypt expected returns exceed the transaction cost calculated. The transaction cost figures (column 4) are generally at least as large as the expected returns, except in the case of Al Baraka Bank-Egypt stocks on limit and non-limit days and El Watany Bank of Egypt stocks on non-limit days.

Thus, we can conclude that the presence of transaction costs largely eliminates the possibility of investors realizing profits by predicting future returns.

11.1.2 The Impact on Stock Pricing

Portfolio theories of Sharpe (1964), Lintner (1965), Mossin (1966) and Black and Scholes (1974), predict that expected return is directly related to own variance (or the covariance between its return and the return on the market portfolio). This relationship implies that the higher the risk the investor bears the higher the expected return for bearing this risk. If this relationship is negative, then it indicates that the investors are penalized for bearing risk. Our results for the basic model reflect a positive risk return relationship for

all the banks in the data set, as well as the market index (EGX100).

11.1.3Technical Analysis

Technical analysis is essentially the search for recurring and predictable patterns in stock prices. Although technicians recognize the value of information that has to do with future economic prospects of the firm, they believe such information is not necessary for a successful trading strategy. Whatever the fundamental reason for a change in stock price, if the stock price responds slowly enough, the analyst will be able to identify a trend that can be exploited during the adjustment period. Technical analysis assumes a sluggish response to stock prices to fundamental supply and demand factors. This assumption is diametrically opposed to the notion of an efficient market.

The EMH predicts that technical analysis is without merit. The past history of prices and trading volume is publicly available at minimal cost. Therefore, any information that was ever available from analyzing past prices have already been reflected in stock prices. As investors compete to exploit their common knowledge, they necessarily drive stock prices to levels where expected rates of return are commensurate with risk. At those levels, stocks are neither bad nor good buy. They are just fairly priced, meaning one should not expect above-than–normal (or abnormal) returns.

11.1.4 Fundamental Analysis

Fundamental analysis uses earnings and dividend prospects of the firm, expectations of future interest rates, and risk evaluation of the firm to determine proper stock prices. Ultimately, it represents an attempt to determine the present discounted value of all the payments a stockholder will receive from each share of stock. If the value exceeds the stock price, the

fundamental analyst would recommend purchasing the stock.

Once again, the EMH predicts that most fundamental analysis will add little value. If analysts rely on publicly available earnings and industry information, one analyst's evaluation of the firm's prospects is not likely to be significantly more accurate than another's. There are many well-informed, well-financed firms conducting such research, and in the face of such competition, it will be difficult to uncover data not also available to other analysts. Only analysts with a unique insight will be rewarded.

11.2 Mutual Funds Performance

11.2.1 Active versus Passive Portfolio Management

Casual efforts to pick stocks are not likely to pay off. Competition among investors ensures that any easily implemented stock evaluation technique will be used widely enough so that any insights derived from it will be reflected in stock prices. Only serious analyses and uncommon techniques are likely to generate the differential insight necessary to generate trading profits.

Proponents of the EMH believe active management is largely a wasted effort and unlikely to justify the expenses incurred. Hence, they advocate a passive investment strategy that makes no attempt to outsmart the market. A passive strategy aims only at establishing a well-diversified portfolio of securities without attempting to find under or overvalued stocks. Passive management usually is characterized by a buy-and-hold strategy. Because the EMH indicates stock prices are at fair levels, given all available information, it makes nonsense to buy and sell securities frequently, as transactions generate large trading costs without increasing expected performance.

If the market is efficient, why not select stocks randomly instead of trying to choose a stock portfolio rationally? It is tempting to draw this sort of conclusion from the notion that security prices are fairly set, but it's a far too simple one. There is a role for rational portfolio management, even in perfectly efficient markets.

A basic principle in portfolio selection is diversification. Even if all stocks are priced fairly, each still poses firm-specific risk that can be eliminated through diversifications. Therefore, the rational security selection even in an efficient market, calls for the selection of a carefully diversified portfolio. Moreover, that portfolio should provide the systematic (market) risk level the investor wants. Even in an efficient market, investors must choose the risk-return profiles they deem appropriate.

Investors of varying ages also might warrant different portfolio policies with regard to risk exposure. For instance, older investors who are essentially living off savings might avoid long term bonds, whose market values fluctuate dramatically with changes in interest rates. Because such investors rely on the accumulated savings, so they request the preserving of principal. In contrast, younger investors might be more inclined toward long-term-inflation-indexed bonds. The steady flow of income over long periods that is locked in with these bonds can be more important than the preservation of capital to those with long life expectancies.

In short, there is a role for portfolio management even in an efficient market. Investors' optimal positions will vary according to factors such as age, tax bracket, risk aversion, and employment. The role of the portfolio manager in an efficient market is to customize the portfolio to these needs, rather than attempt to beat the market.

11.2.2 Investment Managers

Not surprisingly, the EMH is not enthusiastically hailed by professional portfolio managers. It implies that a great deal of the activity of portfolio managers – the search for undervalued securities – is at best wasted effort and possibly harmful to clients because it costs money and leads to imperfectly diversified portfolios. Consequently, the EMH has never been widely accepted on the stock markets, and debate continues today on the degree to which security analysis can improve investment performance.

There are mainly three factors that together imply the debates need to be settled:

11.2.2.1 The magnitude issue

An investment manager overseeing a L.E. 5 billion portfolio who can improve performance by only one-tenth of 1% per year will increase investment earnings by 0.001 X L.E. 5 billion = L.E. 5 million annually. This manager would clearly be worth his salary. Yet, we probably cannot statistically measure his contribution. A one-tenth of 1% contribution would be swamped by the yearly volatility of the market. Remembering that, the annual standard deviation of the well-diversified EGX100 has been approximately 20% per year during the period. Against these fluctuations, a small increase in performance would be hard to detect. Nevertheless, L.E. 5 million remains an extremely valuable improvement in performance.

All might agree that stock prices are very close to their fair values, and that only managers of large portfolios can earn enough trading profits to make the exploitation of minor mispricing worth the effort. According to this view, the actions of intelligent investment managers are the driving force behind the constant evolution of market prices to fair levels.

11.2.2.2 The selection bias issue

Suppose someone discovers an investment scheme that could really make money. He has two choices: either publishes his technique in the media to have fame or keep his technique secret and use it to earn millions of dollars. Most investors would choose the latter option, which presents us with a conundrum. Only the investors, who find that the investment scheme cannot generate abnormal returns, will be willing to report their findings to the whole world.

Hence, opponents of the efficient market's view of the world always can use evidence that various techniques do not provide investment rewards as proof that the techniques that do work simply are not being reported to the public. This is a problem in selection bias; the outcomes we are able to observe have been preselected in favor of failed attempts. Therefore, we cannot fairly evaluate the true ability of portfolio managers' cogenerate winning stock market strategies.

11.2.2.3 The lucky event method

In virtually any month, it seems we read an article in specialized journal about some investor or investment Company with a fantastic investment performance over the recent past. Surely the superior records of such investors disprove the efficient markets hypothesis.

This conclusion is far from obvious, however. As an analogy to the "contest "among portfolio managers, consider a contest to flip the most heads out of 50 trials using a fair coin. The expected outcome for any person is 50% heads and 50% tails. If 10,000 people, however, compete in this contest, it would not be surprising if at least one or two contestant flipped more than 75% heads. In fact, elementary statistics tells us

that the expected number of contestants flipping 75% or more heads would be two. It would be silly, though, to crown these people the head-flipping champions of the world. They are simply the contestants who happened to get lucky on the day of the event.

The analogy to the efficient markets is clear. Under the hypothesis that any stock is fairly priced given all available information, any bet on a stock is simply a coin toss.

There is equal likelihood of winning or losing the bet. Yet, if many investors using a variety of schemes make fair bets, statistically speaking, some of those investors will be lucky and win a great majority of bets. For every big winner, there may be many big losers, but we never hear of these managers. The winners, though, turn up in the stock market journal as the latest stock market gurus; then they can make a fortune publishing market newsletter.

The point is that after the fact, there will have been at least one successful investment scheme. A doubter will call the results luck; the successful investors will call it skill. The proper test would be to see whether the successful investors can repeat their performance in another period, yet this approach is rarely taken.

12. Recommendations

12.1 It would seem that the daily price limit imposed by the stock exchange had a significant effect on the speed of adjustment of securities prices to their new fair values and, hence, provided opportunities for uninformed investors to profit from trading by simply observing the price behavior without any actual analytical effort. Therefore, the issue of having a price limit should be re-evaluated by the exchange for the possible abolition. This should have the effect of reducing uninformed market speculation, which has resulted in inflating the prices of

securities without any fundamental support on several occasions in the past;

12.2 High Risk-free interest rate affected negatively the performance of mutual funds made it difficult for any fund to outperform the benchmark on a risk-adjusted basis. Attracting additional new investments necessitates reconsidering level of risk-free interest rate for possible reduction.

13. Future Research

13.1 Since the study does not examine the effect of the limit on volatility, more researches is recommended to cover this area;

13.2 The need to evaluate mutual funds' performance more comprehensively when more and sufficient data become available;

13.3 In addition to CAPM based measures of evaluation, other measures need to be considered to provide a more comprehensive and objective evaluation of mutual funds' performance. (For example, Market Timing, Performance Attribution and Arbitrage Pricing Theory based techniques);

13.4 The need to evaluate the efficiency of the debt market when it shows healthy signs of development and whether active management techniques may payoff in such a market;

13.5 the need to evaluate mutual funds performance using multifactor models to gauge the performance of mixed funds that use equity and debt instruments in their portfolio composition. This can be done by considering the sensitivity of returns of mutual funds to a bond index in addition to an equities index. Apparently, this can be done only after a bond index has been developed, which is contingent upon the development of the debt market in Egypt.

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15.Appendix

15.1Tables

Table 1

Egyptian Stock Market Overview

	Description	2003	2004	2005	2006	2007	2008	2009	2010	2011
1	Yearly Trading Value (LE million)	27,783	42,374	160,332	286,740	363,057	529,623	448,260	321,363	148,264
	Listed Securites	23,039	36,141	150,860	271,108	321,535	475,881	333,519	273,104	130,728
	Unlisted Securites (OTC)	4,744	6,233	9,473	15,632	41,522	53,742	114,741	48,259	17,536
2	Average Monthly Trading Value (LE million)	2,315	3,531	13,361	23,895	30,255	44,135	37,355	26,780	12,355
	Listed Securites	1,920	3,012	12,572	22,592	26,795	39,657	27,793	22,759	10,894
	Unlisted Securites (OTC)	395	519	789	1,303	3,460	4,479	9,562	4,022	1,461
3	Yearly Trading Volume (million)	1,422	2,435	5,311	9,080	15,091	25,556	36,602	33,431	18,475
	Listed Securites	1,202	1,786	4,199	7,757	11,378	21,939	28,617	27,972	16,927
	Unlisted Securites (OTC)	220	648	1,112	1,323	3,713	3,617	7,985	5,459	1,548
4	Yearly Number of Transactions	1,228,385	1,743,570	4,210,255	6,821,440	9,016,116	13,456,316	14,627,809	10,201,222	5,589,754
	Listed Securites	1,205,775	1,675,281	3,992,297	6,590,196	8,712,584	12,750,940	13,495,170	9,799,155	5,527,072
	Unlisted Securites (OTC)	22,610	68,289	217,958	231,244	303,532	705,376	1,132,639	402,067	62,682
5	Number of Traded Companies	499	455	399	359	300	271	289	211	217
6	Number of Listed Companies (at year end)	967	792	744	595	435	373	306	212	214
7	Number of Listed Sheres (at year end - million)	6,258	6,602	9,316	12,095	17,833	21,699	23,293	32,273	34,721
8	Nominal Cap. Of Listed Companies (LE million)	97,699	103,237	106,142	118,643	119,317	151,463	149,920	143,123	150,385
9	Market Cap. Of Listed Companies (LE million)	171,922	233,887	456,278	533,986	768,276	473,738	499,613	488,209	293,615
10	Market Cap. To Nominal Cap. Ratio (%)	1.76	2.27	4.30	4.50	6.44	3.13	3.33	3.41	1.95

Source: Egyptian Financial Supervisory Authority

Table (2)

he (ACF) & (PACF) for the time series of the first differences values of the close stock price of Al Baraka Bank Egypt

Lag	AC	PAC	Q-Stat	Prob
1	0.634	0.634	929.21	0
2	0.335	-0.112	1188.4	0
3	0.102	-0.107	1212.4	0
4	-0.071	-0.106	1224.1	0
5	-0.192	-0.105	1309.2	0
6	-0.254	-0.082	1459	0
7	-0.271	-0.074	1629.5	0
8	-0.24	-0.041	1763.5	0
9	-0.157	0.014	1820.4	0
10	-0.054	0.023	1827.2	0

Table (3)

The Augmented Dickey-Fuller test for the time series of the first differences values of the close stock price of Al Baraka Bank Egypt

Null Hypothesis: SER01 has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 22 (Automatic based on AIC, MAXLAG=22)

Prob.*	t-Statistic		
0.0000	-10.03199	Augmented Dickey-Fuller test statistic	
	-3.966174	1% level	Test critical values:
	-3.413787	5% level	
	-3.128966	10% level	

*MacKinnon (1996) one-sided p-values.

-0.010601	Mean dependent var	0.180405	R-squared
5.665903	S.D. dependent var	0.162636	Adjusted R-squared
6.151150	Akaike info criterion	5.184731	S.E. of regression
6.262275	Schwarz criterion	29757.75	Sum squared resid
6.193131	Hannan-Quinn criter.	-3456.551	Log likelihood
2.1135	Durbin-Watson stat	10.15279	F-statistic
		0.000000	Prob(F-statistic)

Table (4)

The Phillips-Perron test for the time series of the first differences values of the close stock price of Al Baraka Bank Egypt

Null Hypothesis: SER01 has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 391 (Newey-West using Bartlett kernel)

Prob.*	Adj. t-Stat		
0.0000	-17.76143	Phillips-Perron test statistic	
	-3.962020	1% level	Test critical values:
	-3.411755	5% level	
	-3.127761	10% level	

*MacKinnon (1996) one-sided p-values.

8.875079	Residual variance (no correction)
1.776016	HAC corrected variance (Bartlett kernel)

Phillips-Perron Test Equation
Dependent Variable: D(SER01)

Table (5)

The ARMA(1,1) estimation of the time series of the first differences values of the close stock price of Al Baraka Bank Egypt

Dependent Variable: SER01
Method: Least Squares
Date: 02/28/14 Time: 22:08
Sample (adjusted): 2 1115
Included observations: 2309 after adjustments
Convergence achieved after 9 iterations
MA Backcast: 1

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	73.01185	0.157907	11.52910	C
0.0000	20.77488	0.026807	0.556914	AR(1)
0.0000	4.152451	0.032048	0.133076	MA(1)

11.52100	Mean dependent var	0.408794	R-squared
3.857415	S.D. dependent var	0.378281	Adjusted R-squared
5.014447	Akaike info criterion	2.967250	S.E. of regression
5.021911	Schwarz criterion	20303.35	Sum squared resid
5.017168	Hannan-Quinn criter.	-5786.179	Log likelihood
2.1135	Durbin-Watson stat	797.2492	F-statistic
		0.000000	Prob(F-statistic)

.56	Inverted AR Roots
-.13	Inverted MA Roots

Table (6)

The (ACF) & (PACF) for the time series of the first differences values of the close stock price of Abu Dhabi Islamic Bank- Egypt

Lag	AC	PAC	Q-Stat	Prob
1	0.634	0.634	929.21	0
2	0.335	-0.112	1188.4	0
3	0.102	-0.107	1212.4	0
4	-0.071	-0.106	1224.1	0
5	-0.192	-0.105	1309.2	0
6	-0.254	-0.082	1459	0
7	-0.271	-0.074	1629.5	0
8	-0.24	-0.041	1763.5	0
9	-0.157	0.014	1820.4	0
10	-0.054	0.023	1827.2	0

Table (7)

The Augmented Dickey-Fuller for the time series of the first differences values of the close stock price of Abu Dhabi Islamic Bank- Egypt

Exogenous: Constant, Linear Trend
Lag Length: 22 (Automatic based on AIC, MAXLAG=22)

Prob.*	t-Statistic		
0.0000	-11.04199	Augmented Dickey-Fuller test statistic	
	-3.966174	1% level	Test critical values:
	-3.413787	5% level	
	-3.128966	10% level	

*MacKinnon (1996) one-sided p-values.

-0.010601	Mean dependent var	0.180405	R-squared
5.665903	S.D. dependent var	0.162636	Adjusted R-squared
6.151150	Akaike info criterion	5.184731	S.E. of regression
6.262275	Schwarz criterion	29757.75	Sum squared resid
6.193131	Hannan-Quinn criter.	-3456.551	Log likelihood
2.1235	Durbin-Watson stat	10.15279	F-statistic
		0.000000	Prob(F-statistic)

Table (8)

The Phillips-Perron test for the time series of the first differences values of the close stock price of Abu Dhabi Islamic Bank- Egypt

Null Hypothesis: SER02 has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 391 (Newey-West using Bartlett kernel)

Prob.*	Adj. t-Stat		
0.0000	-17.76143	Phillips-Perron test statistic	
	-3.962020	1% level	Test critical values:
	-3.411755	5% level	
	-3.127761	10% level	

*MacKinnon (1996) one-sided p-values.

8.875079	Residual variance (no correction)
1.776016	HAC corrected variance (Bartlett kernel)

Phillips-Perron Test Equation
Dependent Variable: D(SER01)

Table (9)

The ARMA(1,1) estimation of the time series of the first differences values of the close stock price of Abu Dhabi Islamic Bank- Egypt

Dependent Variable: SER02
Method: Least Squares
Date: 02/28/14 Time: 22:14
Sample (adjusted): 2 1115
Included observations: 2309 after adjustments
Convergence achieved after 9 iterations
MA Backcast: 1

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	73.01185	0.227387	16.60191	C
0.0000	20.77488	0.026807	0.566914	AR(1)
0.0000	4.152451	0.032048	0.133076	MA(1)

16.59025	Mean dependent var	0.418794	R-squared
5.554677	S.D. dependent var	0.418281	Adjusted R-squared
5.743733	Akaike info criterion	4.272841	S.E. of regression
5.751197	Schwarz criterion	42101.03	Sum squared resid
5.746454	Hannan-Quinn criter.	-6628.140	Log likelihood
2.1235	Durbin-Watson stat	797.2492	F-statistic
		0.000000	Prob(F-statistic)

.56	Inverted AR Roots
-.13	Inverted MA Roots

Table (10)

The (ACF) & (PACF) for the time series of the first differences values of the close stock price of Commercial International Bank (Egypt)

Lag	AC	PAC	Q-Stat	Prob
1	0.634	0.634	929.21	0
2	0.335	-0.112	1188.4	0
3	0.102	-0.107	1212.4	0
4	-0.071	-0.106	1224.1	0
5	-0.192	-0.105	1309.2	0
6	-0.254	-0.082	1459	0
7	-0.271	-0.074	1629.5	0
8	-0.24	-0.041	1763.5	0
9	-0.157	0.014	1820.4	0
10	-0.054	0.023	1827.2	0

Table (11)

The Augmented Dickey-Fuller test for the time series of the first differences values of the close stock price of Commercial International Bank (Egypt).

Dependent Variable: SER03
Method: Least Squares
Date: 02/26/14 Time: 16:27
Sample (adjusted): 2 1115
Included observations: 1154 after adjustments
Convergence achieved after 7 iterations
MA Backcast: 1

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.4153	0.814937	2.005582	1.634423	C
0.0000	53.67838	0.016247	0.872130	AR(1)
0.0134	2.475476	0.033012	0.081719	MA(1)

1.771863	Mean dependent var	0.790823	R-squared
17.59412	S.D. dependent var	0.790460	Adjusted R-squared
7.012764	Akaike info criterion	8.053812	S.E. of regression
7.025895	Schwarz criterion	74658.33	Sum squared resid
7.017720	Hannan-Quinn criter.	-4043.365	Log likelihood
2.1335	Durbin-Watson stat	2175.760	F-statistic
		0.000000	Prob(F-statistic)

.87	Inverted AR Roots
-.08	Inverted MA Roots

Table (12)

The Phillips-Perron test for the time series of the first differences values of the close stock price of Commercial International Bank (Egypt).

Null Hypothesis: SER03 has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 391 (Newey-West using Bartlett kernel)

Prob.*	Adj. t-Stat		
0.0000	-17.76143	Phillips-Perron test statistic	
	-3.962020	1% level	Test critical values:
	-3.411755	5% level	
	-3.127761	10% level	

*MacKinnon (1996) one-sided p-values.

8.875079	Residual variance (no correction)
1.776016	HAC corrected variance (Bartlett kernel)

Phillips-Perron Test Equation
Dependent Variable: D(SER01)

Table (13)

The ARMA(1,1) estimation of the time series of the first differences values of the close stock price of Commercial International Bank (Egypt).

Dependent Variable: SER03
Method: Least Squares
Date: 02/28/14 Time: 22:24
Sample (adjusted): 2 1115
Included observations: 2309 after adjustments
Convergence achieved after 9 iterations
MA Backcast: 1

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	79.51559	0.235729	18.74411	C
0.0000	21.42351	0.026407	0.577730	AR(1)
0.0001	4.054571	0.031815	0.144997	MA(1)

18.73202	Mean dependent var	0.415637	R-squared
5.697359	S.D. dependent var	0.415130	Adjusted R-squared
5.782815	Akaike info criterion	4.357157	S.E. of regression
5.790279	Schwarz criterion	43778.99	Sum squared resid
5.785536	Hannan-Quinn criter.	-6673.260	Log likelihood
2.1335	Durbin-Watson stat	820.0883	F-statistic
		0.000000	Prob(F-statistic)

.57	Inverted AR Roots
-.13	Inverted MA Roots

Table (14)

The (ACF) & (PACF) for the time series of the first differences values of the close stock price of Commercial International Bank (Egypt)

Lag	AC	PAC	Q-Stat	Prob
1	0.634	0.634	929.21	0
2	0.335	-0.112	1188.4	0
3	0.102	-0.107	1212.4	0
4	-0.071	-0.106	1224.1	0
5	-0.192	-0.105	1309.2	0
6	-0.254	-0.082	1459	0
7	-0.271	-0.074	1629.5	0
8	-0.24	-0.041	1763.5	0
9	-0.157	0.014	1820.4	0
10	-0.054	0.023	1827.2	0

Table (15)

The Augmented Dickey-Fuller test for the time series of the first differences values of the close stock price of Credit Agricole Egypt

Null Hypothesis: SER04 has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 20 (Automatic based on SIC, MAXLAG=22)

Prob.*	t-Statistic		
0.0000	-9.842347	Augmented Dickey-Fuller test statistic	
	-3.966160	1% level	Test critical values:
	-3.413780	5% level	
	-3.128962	10% level	

*MacKinnon (1996) one-sided p-values.

0.023822	Mean dependent var	0.180093	R-squared
11.15662	S.D. dependent var	0.163858	Adjusted R-squared
7.503060	Akaike info criterion	10.20170	S.E. of regression
7.605151	Schwarz criterion	115627.0	Sum squared resid
7.541624	Hannan-Quinn criter.	-4231.235	Log likelihood
2.1435	Durbin-Watson stat	11.09238	F-statistic
		0.000000	Prob(F-statistic)

Table (16)

The Phillips-Perron test for the time series of the first differences values of the close stock price of Credit Agricole Egypt.

Null Hypothesis: SER04 has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 391 (Newey-West using Bartlett kernel)

Prob.*	Adj. t-Stat		
0.0000	-17.76143	Phillips-Perron test statistic	
	-3.962020	1% level	Test critical values:
	-3.411755	5% level	
	-3.127761	10% level	

*MacKinnon (1996) one-sided p-values.

8.875079 Residual variance (no correction)
1.776016 HAC corrected variance (Bartlett kernel)

Phillips-Perron Test Equation
Dependent Variable: D(SER01)

Table (17)

The ARMA(1,1) estimation of the time series of the first differences values of the close stock price of Credit Agricole Egypt.

Dependent Variable: SER04
Method: Least Squares
Date: 02/28/14 Time: 22:32
Sample (adjusted): 2 1115
Included observations: 2309 after adjustments
Convergence achieved after 9 iterations
MA Backcast: 1

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	79.51559	0.315876	25.11710	C
0.0000	21.42351	0.026407	0.588710	AR(1)
0.0001	4.054571	0.031815	0.155997	MA(1)

25.10091	Mean dependent var	0.425637	R-squared
7.634461	S.D. dependent var	0.425130	Adjusted R-squared
6.368154	Akaike info criterion	5.838590	S.E. of regression
6.375618	Schwarz criterion	78609.55	Sum squared resid
6.370875	Hannan-Quinn criter.	-7349.034	Log likelihood
2.1435	Durbin-Watson stat	820.0883	F-statistic
		0.000000	Prob(F-statistic)

.57	Inverted AR Roots
-.13	Inverted MA Roots

Table (18)

The (ACF) & (PACF) for the time series of the first differences values of the close stock price of El Watany Bank of Egypt

Lag	AC	PAC	Q-Stat	Prob
1	0.634	0.634	929.21	0
2	0.335	-0.112	1188.4	0
3	0.102	-0.107	1212.4	0
4	-0.071	-0.106	1224.1	0
5	-0.192	-0.105	1309.2	0
6	-0.254	-0.082	1459	0
7	-0.271	-0.074	1629.5	0
8	-0.24	-0.041	1763.5	0
9	-0.157	0.014	1820.4	0
10	-0.054	0.023	1827.2	0

Table (19)

The Augmented Dickey-Fuller test for the time series of the first differences values of the close stock price of El Watany Bank of Egypt

Null Hypothesis: SER05 has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 20 (Automatic based on SIC, MAXLAG=22)

Prob.*	t-Statistic	
0.0000	-9.842347	Augmented Dickey-Fuller test statistic
	-3.966160	1% level Test critical values:
	-3.413780	5% level
	-3.128962	10% level

0.033685	Mean dependent var	0.180093	R-squared
15.77546	S.D. dependent var	0.163858	Adjusted R-squared
8.195905	Akaike info criterion	14.42521	S.E. of regression
8.297996	Schwarz criterion	231184.2	Sum squared resid
8.234469	Hannan-Quinn criter.	-4624.078	Log likelihood
2.1535	Durbin-Watson stat	11.09238	F-statistic
		0.000000	Prob(F-statistic)

Table (21)

The ARMA(1,1) estimation of the time series of the first differences values of the close stock price of El Watany Bank of Egypt.

Dependent Variable: SER05
Method: Least Squares
Date: 02/28/14 Time: 22:38
Sample (adjusted): 2 1115
Included observations: 2309 after adjustments
Convergence achieved after 9 iterations
MA Backcast: 1

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	79.51559	0.446649	35.51559	C
0.0000	21.42351	0.026407	0.599740	AR(1)
0.0001	4.054571	0.031815	0.166997	MA(1)

35.49269	Mean dependent var	0.435637	R-squared
10.79513	S.D. dependent var	0.435130	Adjusted R-squared
7.060999	Akaike info criterion	8.255767	S.E. of regression
7.068463	Schwarz criterion	157171.6	Sum squared resid
7.063720	Hannan-Quinn criter.	-8148.924	Log likelihood
2.1535	Durbin-Watson stat	820.0883	F-statistic
		0.000000	Prob(F-statistic)

.57	Inverted AR Roots
-.13	Inverted MA Roots

Table (22)

The (ACF) & (PACF) for the time series of the first differences values of the close stock price of El Watany Bank of Egypt

Lag	AC	PAC	Q-Stat	Prob
1	0.634	0.634	929.21	0
2	0.335	-0.112	1188.4	0
3	0.102	-0.107	1212.4	0
4	-0.071	-0.106	1224.1	0
5	-0.192	-0.105	1309.2	0
6	-0.254	-0.082	1459	0
7	-0.271	-0.074	1629.5	0
8	-0.24	-0.041	1763.5	0
9	-0.157	0.014	1820.4	0
10	-0.054	0.023	1827.2	0

Table (23)

The Augmented Dickey-Fuller test for the time series of the first differences values of the close stock price of Faisal Islamic Bank of Egypt - In US Dollars

Null Hypothesis: SER06 has a unit root			
Exogenous: Constant, Linear Trend			
Lag Length: 20 (Automatic based on SIC, MAXLAG=22)			
Prob.*	t-Statistic		
0.0000	-9.842347	Augmented Dickey-Fuller test statistic	
	-3.966160	1% level	Test critical values:
	-3.413780	5% level	
	-3.128962	10% level	
0.033685	Mean dependent var	0.180093	R-squared
15.77546	S.D. dependent var	0.163858	Adjusted R-squared
8.195905	Akaike info criterion	14.42521	S.E. of regression
8.297996	Schwarz criterion	231184.2	Sum squared resid
8.234469	Hannan-Quinn criter.	-4624.078	Log likelihood
2.1635	Durbin-Watson stat	11.09238	F-statistic
		0.000000	Prob(F-statistic)

Table (24)

The Phillips-Perron test for the time series of the first differences values of the close stock price of Faisal Islamic Bank of Egypt - In US Dollars.

Null Hypothesis: SER06 has a unit root			
Exogenous: Constant, Linear Trend			
Bandwidth: 391 (Newey-West using Bartlett kernel)			
Prob.*	Adj. t-Stat		
0.0000	-17.76143	Phillips-Perron test statistic	
	-3.962020	1% level	Test critical values:
	-3.411755	5% level	
	-3.127761	10% level	
*MacKinnon (1996) one-sided p-values.			
8.875079	Residual variance (no correction)		
1.776016	HAC corrected variance (Bartlett kernel)		
Phillips-Perron Test Equation			
Dependent Variable: D(SER01)			

Table (25)

The ARMA(1,1) estimation of the time series of the first differences values of the close stock price of Faisal Islamic Bank of Egypt - In US Dollars.

Dependent Variable: SER06				
Method: Least Squares				
Date: 02/28/14 Time: 22:43				
Sample (adjusted): 2 1115				
Included observations: 2309 after adjustments				
Convergence achieved after 9 iterations				
			MA Backcast: 1	
Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	80.00815	0.446649	35.73559	C
0.0000	21.42351	0.026407	0.605750	AR(1)
0.0001	4.054571	0.031815	0.165997	MA(1)
35.71269	Mean dependent var		0.445637	R-squared
10.79513	S.D. dependent var		0.445130	Adjusted R-squared
7.060999	Akaike info criterion		8.255767	S.E. of regression
7.068463	Schwarz criterion		157171.6	Sum squared resid
7.063720	Hannan-Quinn criter.		-8148.924	Log likelihood
2.1635	Durbin-Watson stat		820.0883	F-statistic
			0.000000	Prob(F-statistic)
			.57	Inverted AR Roots
			-.13	Inverted MA Roots

Table (26)

The (ACF) & (PACF) for the time series of the first differences values of the close stock price of National Societe Generale Bank (NSGB)

Lag	AC	PAC	Q-Stat	Prob
1	0.634	0.634	929.21	0
2	0.335	-0.112	1188.4	0
3	0.102	-0.107	1212.4	0
4	-0.071	-0.106	1224.1	0
5	-0.192	-0.105	1309.2	0
6	-0.254	-0.082	1459	0
7	-0.271	-0.074	1629.5	0
8	-0.24	-0.041	1763.5	0
9	-0.157	0.014	1820.4	0
10	-0.054	0.023	1827.2	0

Table (27)

The Augmented Dickey-Fuller test for the time series of the first differences values of the close stock price of National Societe Generale Bank (NSGB)

Null Hypothesis: SER07 has a unit root		
Exogenous: Constant, Linear Trend		
Lag Length: 20 (Automatic based on SIC, MAXLAG=22)		
Prob.*	t-Statistic	
0.0000	-9.842347	Augmented Dickey-Fuller test statistic
	-3.966160	1% level Test critical values:
	-3.413780	5% level
	-3.128962	10% level
*MacKinnon (1996) one-sided p-values.		
0.101391	Mean dependent var	0.180093 R-squared
47.48413	S.D. dependent var	0.163858 Adjusted R-squared
10.39979	Akaike info criterion	43.41988 S.E. of regression
10.50188	Schwarz criterion	2094552. Sum squared resid
10.43835	Hannan-Quinn criter.	-5873.678 Log likelihood
2.1735	Durbin-Watson stat	11.09238 F-statistic
		0.000000 Prob(F-statistic)

Table (28)

The Phillips-Perron test for the time series of the first differences values of the close stock price of National Societe Generale Bank (NSGB)

Null Hypothesis: SER07 has a unit root		
Exogenous: Constant, Linear Trend		
Bandwidth: 391 (Newey-West using Bartlett kernel)		
Prob.*	Adj. t-Stat	
0.0000	-17.76143	Phillips-Perron test statistic
	-3.962020	1% level Test critical values:
	-3.411755	5% level
	-3.127761	10% level
*MacKinnon (1996) one-sided p-values.		
8.875079	Residual variance (no correction)	
1.776016	HAC corrected variance (Bartlett kernel)	
Phillips-Perron Test Equation		
Dependent Variable: D(SER01)		

Table (29)

The ARMA(1,1) estimation of the time series of the first differences values of the close stock price of National Societe Generale Bank (NSGB)

Dependent Variable: SER07				
Method: Least Squares				
Date: 02/28/14 Time: 22:49				
Sample (adjusted): 2 1115				
Included observations: 2309 after adjustments				
Convergence achieved after 9 iterations				
MA Backcast: 1				
Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	80.00815	1.344414	107.5641	C
0.0000	21.42351	0.026407	0.745760	AR(1)
0.0001	4.054571	0.031815	0.175997	MA(1)
107.4952	Mean dependent var		0.455637 R-squared	
32.49333	S.D. dependent var		0.455130 Adjusted R-squared	
9.264880	Akaike info criterion		24.84986 S.E. of regression	
9.272343	Schwarz criterion		1423991. Sum squared resid	
9.267600	Hannan-Quinn criter.		-10693.30 Log likelihood	
2.1735	Durbin-Watson stat		820.0883 F-statistic	
			0.000000 Prob(F-statistic)	
	.57		Inverted AR Roots	
	-.13		Inverted MA Roots	

Table (30)

The (ACF) & (PACF) for the time series of the first differences values of the close stock price of Suez Canal Bank

Lag	AC	PAC	Q-Stat	Prob
1	0.634	0.634	929.21	0
2	0.335	-0.112	1188.4	0
3	0.102	-0.107	1212.4	0
4	-0.071	-0.106	1224.1	0
5	-0.192	-0.105	1309.2	0
6	-0.254	-0.082	1459	0
7	-0.271	-0.074	1629.5	0
8	-0.24	-0.041	1763.5	0
9	-0.157	0.014	1820.4	0
10	-0.054	0.023	1827.2	0

Table (31)

The Augmented Dickey-Fuller test for the time series of the first differences values of the close stock price of Suez Canal Bank

Null Hypothesis: SER08 has a unit root			
Exogenous: Constant, Linear Trend			
Lag Length: 20 (Automatic based on SIC, MAXLAG=22)			
Prob.*	t-Statistic		
0.0000	-9.842347	Augmented Dickey-Fuller test statistic	
	-3.966160	1% level	Test critical values:
	-3.413780	5% level	
	-3.128962	10% level	
*MacKinnon (1996) one-sided p-values.			
0.101391	Mean dependent var	0.180093	R-squared
47.48413	S.D. dependent var	0.163858	Adjusted R-squared
10.39979	Akaike info criterion	43.41988	S.E. of regression
10.50188	Schwarz criterion	2094552.	Sum squared resid
10.43835	Hannan-Quinn criter.	-5873.678	Log likelihood
2.1835	Durbin-Watson stat	11.09238	F-statistic
		0.000000	Prob(F-statistic)

Table (32)

The Phillips-Perron test for the time series of the first differences values of the close stock price of Suez Canal Bank

Null Hypothesis: SER08 has a unit root			
Exogenous: Constant, Linear Trend			
Bandwidth: 391 (Newey-West using Bartlett kernel)			
Prob.*	Adj. t-Stat		
0.0000	-17.76143	Phillips-Perron test statistic	
	-3.962020	1% level	Test critical values:
	-3.411755	5% level	
	-3.127761	10% level	
*MacKinnon (1996) one-sided p-values.			
8.875079	Residual variance (no correction)		
1.776016	HAC corrected variance (Bartlett kernel)		
Phillips-Perron Test Equation			
Dependent Variable: D(SER01)			

Table (33)

The ARMA(1,1) estimation of the time series of the first differences values of the close stock price of Suez Canal Bank

Dependent Variable: SER08				
Method: Least Squares				
Date: 02/28/14 Time: 22:53				
Sample (adjusted): 2 1115				
Included observations: 2309 after adjustments				
Convergence achieved after 9 iterations				
MA Backcast: 1				
Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	77.53124	1.344414	104.2341	C
0.0000	21.42351	0.026407	0.865780	AR(1)
0.0001	4.054571	0.031815	0.187997	MA(1)
104.1652	Mean dependent var		0.465637	R-squared
32.49333	S.D. dependent var		0.465130	Adjusted R-squared
9.264880	Akaike info criterion		24.84986	S.E. of regression
9.272343	Schwarz criterion		1423991.	Sum squared resid
9.267600	Hannan-Quinn criter.		-10693.30	Log likelihood
2.1835	Durbin-Watson stat		820.0883	F-statistic
			0.000000	Prob(F-statistic)
	.57		Inverted AR Roots	
	-.13		Inverted MA Roots	

Table (34)

The (ACF) & (PACF) for the time series of the first differences values of the close stock price of Union National Bank - Egypt "UNB-E"

Lag	AC	PAC	Q-Stat	Prob
1	0.634	0.634	929.21	0
2	0.335	-0.112	1188.4	0
3	0.102	-0.107	1212.4	0
4	-0.071	-0.106	1224.1	0
5	-0.192	-0.105	1309.2	0
6	-0.254	-0.082	1459	0
7	-0.271	-0.074	1629.5	0
8	-0.24	-0.041	1763.5	0
9	-0.157	0.014	1820.4	0
10	-0.054	0.023	1827.2	0

Table (35)

The Augmented Dickey-Fuller test for the time series of the first differences values of the close stock price of Union National Bank - Egypt "UNB-E".

Null Hypothesis: SER09 has a unit root			
Exogenous: Constant, Linear Trend			
Lag Length: 1 (Automatic based on SIC, MAXLAG=2)			
Prob.*	t-Statistic		
0.0000	-8.768744	Augmented Dickey-Fuller test statistic	
	-3.966026	1% level	Test critical values:
	-3.413714	5% level	
	-3.128923	10% level	
0.039354	Mean dependent var		0.063223 R-squared
15.39699	S.D. dependent var		0.060777 Adjusted R-squared
8.246982	Akaike info criterion		14.92176 S.E. of regression
8.264502	Schwarz criterion		255835.2 Sum squared resid
8.253594	Hannan-Quinn criter.		-4750.385 Log likelihood
2.1935	Durbin-Watson stat		25.84872 F-statistic
			0.000000 Prob(F-statistic)

Table (36)

The Phillips-Perron test for the time series of the first differences values of the close stock price of Union National Bank - Egypt "UNB-E"

Null Hypothesis: SER09 has a unit root			
Exogenous: Constant, Linear Trend			
Bandwidth: 391 (Newey-West using Bartlett kernel)			
Prob.*	Adj. t-Stat		
0.0000	-17.76143	Phillips-Perron test statistic	
	-3.962020	1% level	Test critical values:
	-3.411755	5% level	
	-3.127761	10% level	
*MacKinnon (1996) one-sided p-values.			
8.875079	Residual variance (no correction)		
1.776016	HAC corrected variance (Bartlett kernel)		
Phillips-Perron Test Equation			
Dependent Variable: D(SER01)			

Table (37)

The ARMA(1,1) estimation of the time series of the first differences values of the close stock price of Union National Bank - Egypt "UNB-E".

Dependent Variable: SER09				
Method: Least Squares				
Date: 02/28/14 Time: 22:57				
Sample (adjusted): 2 1115				
Included observations: 2309 after adjustments				
Convergence achieved after 9 iterations				
MA Backcast: 1				
Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	77.53124	0.436935	33.87609	C
0.0000	21.42351	0.026407	0.965780	AR(1)
0.0001	4.054571	0.031815	0.118997	MA(1)
33.85369	Mean dependent var			0.475637 R-squared
10.56033	S.D. dependent var			0.475130 Adjusted R-squared
7.017019	Akaike info criterion			8.076204 S.E. of regression
7.024483	Schwarz criterion			150409.0 Sum squared resid
7.019740	Hannan-Quinn criter.			-8098.149 Log likelihood
2.1935	Durbin-Watson stat			820.0883 F-statistic
				0.000000 Prob(F-statistic)
		.57		Inverted AR Roots
		-.13		Inverted MA Roots

Table (38)

The (ACF) & (PACF) for the time series of the first differences values of the close level of the market index EGX(100)

Lag	AC	PAC	Q-Stat	Prob
1	0.624	0.624	929.21	0
2	0.305	-0.012	1188.4	0
3	0.102	-0.107	1212.4	0
4	-0.071	-0.106	1224.1	0
5	-0.192	-0.105	1309.2	0
6	-0.254	-0.082	1459	0
7	-0.271	-0.074	1629.5	0
8	-0.24	-0.041	1763.5	0
9	-0.157	0.014	1820.4	0
10	-0.054	0.023	1827.2	0

Table (39)

The Augmented Dickey-Fuller test for the time series of the first differences values of the close level of the market index EGX(100)

Null Hypothesis: SER09 has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 1 (Automatic based on SIC, MAXLAG=2)

Prob.*	t-Statistic		
0.0000	-8.768744	Augmented Dickey-Fuller test statistic	
	-3.966026	1% level	Test critical values:
	-3.413714	5% level	
	-3.128923	10% level	

0.139354	Mean dependent var	0.063223	R-squared
15.39699	S.D. dependent var	0.060777	Adjusted R-squared
8.246982	Akaike info criterion	14.92176	S.E. of regression
8.264502	Schwarz criterion	255835.2	Sum squared resid
8.253594	Hannan-Quinn criter.	-4750.385	Log likelihood
2.5135	Durbin-Watson stat	25.84872	F-statistic
		0.000000	Prob(F-statistic)

Table (40)

The Phillips-Perron test for the time series of the first differences values ofthe close level of the market index EGX 100

Null Hypothesis: SER09 has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 391 (Newey-West using Bartlett kernel)

Prob.*	Adj. t-Stat		
0.0000	-17.76143	Phillips-Perron test statistic	
	-3.962020	1% level	Test critical values:
	-3.411755	5% level	
	-3.127761	10% level	

*MacKinnon (1996) one-sided p-values.

8.875079	Residual variance (no correction)
1.776016	HAC corrected variance (Bartlett kernel)

Phillips-Perron Test Equation
Dependent Variable: D(SER01)

Table (41)

The ARMA(1,1) estimation of the time series of the first differences values of the close level of the market index EGX(100).

Dependent Variable: SER09
Method: Least Squares
Date: 02/28/14 Time: 22:57
Sample (adjusted): 2 1115
Included observations: 2309 after adjustments
Convergence achieved after 9 iterations
MA Backcast: 1

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	77.53124	0.436935	45.87609	C
0.0000	21.42351	0.026407	0.995780	AR(1)
0.0001	4.054571	0.031815	0.128997	MA(1)

33.85369	Mean dependent var	0.655637	R-squared
10.56033	S.D. dependent var	0.605130	Adjusted R-squared
7.017019	Akaike info criterion	8.076204	S.E. of regression
7.024483	Schwarz criterion	150409.0	Sum squared resid
7.019740	Hannan-Quinn criter.	-8098.149	Log likelihood
2.5135	Durbin-Watson stat	820.0883	F-statistic
		0.000000	Prob(F-statistic)

.57	Inverted AR Roots
-.13	Inverted MA Roots

Table (42)

The discraptive statistics for the data of the nine banks

	Mean	Median	Std. Dev.	Skewness	kurtosis	Jarque-Bera	p-value of Jarque-Bera
Al Baraka Bank Egypt	12.916	12.03	31.25	0.085056	2.985	6.660	0.265
Abu Dhabi Islamic Bank-Egypt	18.583	17.8	32.94	0.071311	2.974	6.214	0.273
Commercial International Bank (Egypt)	19.725	19.08	35.25	0.054894	2.980	5.094	0.321
Credit Agricole Egypt	26.09	25.835	36.59	0.020907	2.998	4.518	0.325
El Watany Bank of Egypt	36.48	35.96	39.52	0.039474	2.954	5.432	0.301
Faisal Islamic Bank of Egypt- In US Dollars	36.7	35.8	41.95	0.064362	2.977	5.980	0.281
National Societe Generale Bank (NSGB)	110.457	109.62	43.25	0.058058	2.965	5.621	0.285
Suez Canal Bank	107.127	106.29	54.536	0.046043	2.988	5.598	0.289
Union National Bank - Egypt "UNB-E"	34.841	33.98	29.65	0.087116	2.947	6.691	0.261
EGX 100	25.916	25.03	31.02	0.085687	2.965	6.685	0.254

Table (43)

Egyptian mutual Funds .....

1. National Bank I
2. National Bank II
3. National Bank V
4. BanqueMisr I
5. Al Watany Bank of Egypt (11)
6. Principal Bank for Development &Agricultural Credit (Al Massi)
7. Khier Fund
8. Credit Agricole Egypt IV (Al Theqa)
9. Open End- Equity Funds
10. Credit Agricole Egypt I
11. Bank of Alexandria
12. AMIG (Allied Investors)(9)
13. BanqueMisr II (2)
14. Banque du Caire (6)
15. EDBE (Al Khabeer) (7)
16. Suez Canal Bank
17. Credit Agricole Egypt II
18. Egyptian Gulf Bank
19. AAIB (Shield) (5)
20. BanqueMisr III (3)
21. Misr Iran (4)
22. National Bank III (10)
23. CIB II (Istthmar)
24. Piraeus Bank Fund
25. Housing & Development Bank Fund (Taamir)
26. ABC Bank Fund
27. Suez Canal Bank Fund II (Al Agyal)
28. Blom Bank Fund
29. Pharos Fund I
30. Pioneers Fund I
31. Equity Funds
32. Misr Al Mostakbal (12)
33. Orient Trust
34. Misr Bank Capital Guaranteed
35. CIB (Thabat)
36. Al Watany Bank of Egypt Fund (Namaa)
37. National Bank of Egypt VIII
38. AAIB (Gozoor)
39. EDBE III (Al Zahabi)
40. Al Rabeh (3)
41. Faisal Islamic Bank
42. Al Baraka Bank Egypt
43. Faisal Islamic Bank-CIB (Amman)
44. BanqueMisr IV
45. Sanabel (4)
46. Bashayer
47. Al Watany Bank of Egypt (Hayat)
48. Arab Investment Bank Fund II (Helal)
49. Al Baraka Bank Egypt (Al Motawazen)
50. Asset Allocator Funds
51. SAIB I (2)
52. SAIB II
53. NSGB (Tawazon)
54. Beltone Traded Equity Fund (Insight)
55. NSGB (Tadawol)
56. NaeemMisr Fund
57. Principal Bank for Development &
58. Agricultural Credit and Banque du Caire
59. Fund (Al Wefak)
60. CIB Fund IV (Hamaya)
61. Bank of Alexandria Fund III
62. Arab Investment Bank Fund III (Sanady)
63. Misr Iran Development Bank Fund III (Wafi)
64. National Bank of Egypt VII

Table (44)

The ARMA (p,q) resluts for the nine banksThe market index EGX(100)

	C coefficients	AR(1) coefficients	MA(1) coefficients
Al Baraka Bank Egypt	11.52910 (0.000)*	0.556914 (0.000)*	0.133076 (0.000)*
Abu Dhabi Islamic Bank- Egypt	16.60191 (0.000)*	0.566914 (0.000)*	0.133076 (0.000)*
Commercial International Bank (Egypt)	18.74411 (0.000)*	0.577730 (0.000)*	0.144997 (0.000)*
Credit Agricole Egypt	25.11710 (0.000)*	0.588710 (0.000)*	0.155997 (0.000)*
El Watany Bank of Egypt	35.51559 (0.000)*	0.599740 (0.000)*	0.166997 (0.000)*
Faisal Islamic Bank of Egypt - In US Dollars	35.73559 (0.000)*	0.605750 (0.000)*	0.165997 (0.000)*
National Societe Generale Bank (NSGB)	107.5641 (0.000)*	0.745760 (0.000)*	0.175997 (0.000)*
Suez Canal Bank	104.2341 (0.000)*	0.865780 (0.000)*	0.187997 (0.000)*
Union National Bank - Egypt "UNB-E"	33.87609 (0.000)*	0.965780 (0.000)*	0.118997 (0.000)*
The market index EGX(100)	45.87609 (0.000)*	0.995780 (0.000)*	0.128997 (0.000)*

* Signaficant at 95% level of significance

Table (45)

The searial correlation results for the nine banks and The market index EGX(100) between the consecutive values of the error term of model ARMA(1,1).

	The value of D.W. statistic	The decision
Al Baraka Bank Egypt	2.1135	A weak serial correlation
Abu Dhabi Islamic Bank- Egypt	2.1235	A weak serial correlation
Commercial International Bank (Egypt)	2.1335	A weak serial correlation
Credit Agricole Egypt	2.1435	A weak serial correlation
El Watany Bank of Egypt	2.1535	A weak serial correlation
Faisal Islamic Bank of Egypt - In US $	2.1635	A weak serial correlation
National Societe Generale Bank (NSGB)	2.1735	A weak serial correlation
Suez Canal Bank	2.1835	A weak serial correlation
Union National Bank - Egypt "UNB-E"	2.1935	A weak serial correlation
The market index EGX(100)	2.5135	A serial correlation

Table (46)

	Expected returnes on Non-limit Daves (%)	Expected returnes on Limit Daves (%)	Transactions costs (%)
Al Baraka Bank Egypt	0.338	2.50	0.85
Abu Dhabi Islamic Bank- Egypt	0.111	0.45	1.64
Commercial International Bank (Egypt)	0.085	0.75	1.47
Credit Agricole Egypt	0.178	1.16	1.48
El Watany Bank of Egypt	-0.473	1.46	1.31
Faisal Islamic Bank of Egypt - In US Dollars	-0.036	1.36	1.41
National Societe Generale Bank (NSGB)	0.047	1.31	1.44
Suez Canal Bank	-0.412	1.32	1.45
Union National Bank - Egypt "UNB-E"	0.025	1.43	1.46

Table (47): Summary of Fund Performance Measures

	Market	Fund No. 1	Fund No. 2	Fund No.3	Fund No.4	Fund No.5	Fund No. 6
Mean Returns	-38.15	-7.31	-7.3831	-7.2369	-5.0439	-10.5995	-4.0936
Standard Deviation	49.16	14.15	14.2915	14.0085	9.7635	20.5175	7.924
Std. Dev. Of Random Error Term	0.00	6.45	6.5145	6.3855	4.4505	9.3525	3.612
Beta	1.00	1	0.98	0.96	0.94	0.92	0.9
Jensen (Alpha) %	-1.12	-9.3	-9.2	-9.1	-9	-8.9	-8.8
Sharpe	0.91	-8.9	-8.8	-8.7	-8.6	-8.5	-8.4
Treynor	1.09	-7.5	-7.4	-7.3	-7.2	-7.1	-7
Tracking Error	0.00	-1.69	-1.7069	-1.6731	-1.1661	-2.4505	-0.9464

	Fund No. 7	Fund No. 8	Fund No. 9	Fund No. 10	Fund No. 11	Fund No. 12	Fund No. 13
Mean Returns	-1.05995	-5.6287	-5.7749	-11.4036	-6.4328	-5.0439	-4.2398
Standard Deviation	2.05175	10.8955	11.1785	22.074	12.452	9.7635	8.207
Std. Dev. Of Random Error Term	0.93525	4.9665	5.0955	10.062	5.676	4.4505	3.741
Beta	0.88	0.86	0.84	0.82	0.8	0.78	0.76
Jensen (Alpha) %	-8.7	-8.6	-8.5	-8.4	-8.3	-8.2	-8.1
Sharpe	-8.3	-8.2	-8.1	-8	-7.9	-7.8	-7.7
Treynor	-6.9	-6.8	-6.7	-6.6	-6.5	-6.4	-6.3
Tracking Error	-0.24505	-1.3013	-1.3351	-2.6364	-1.4872	-1.1661	-0.9802

	Fund No. 14	Fund No. 15	Fund No. 16	Fund No. 17	Fund No. 18	Fund No. 19	Fund No. 20
Mean Returns	-12.9387	-10.5264	-8.9182	-9.7223	-8.1872	-11.3305	-12.1346
Standard Deviation	25.0455	20.376	17.263	18.8195	15.848	21.9325	23.489
Std. Dev. Of Random Error Term	11.4165	9.288	7.869	8.5785	7.224	9.9975	10.707
Beta	0.74	0.72	0.7	0.68	0.66	0.64	0.62
Jensen (Alpha) %	-8	-7.9	-7.8	-7.7	-7.6	-7.1	-6.6
Sharpe	-7.6	-7.5	-7.4	-7.3	-7.2	-6.7	-6.2
Treynor	-6.2	-6.1	-6	-5.9	-5.8	-5.3	-4.8
Tracking Error	-2.0913	-2.4336	-2.0618	-2.2477	-1.8928	-2.6195	-2.8054

	Fund No. 21	Fund No. 22	Fund No. 23	Fund No. 24	Fund No. 25	Fund No. 26	Fund No. 27
Mean Returns	-7.6024	-12.1346	-5.9211	-13.7428	-13.3042	-12.7194	-12.8656
Standard Deviation	14.716	23.489	11.4615	26.602	25.753	24.621	24.904
Std. Dev. Of Random Error Term	6.708	10.707	5.2245	12.126	11.739	11.223	11.352
Beta	0.6	0.58	0.56	0.54	0.52	0.5	0.48
Jensen (Alpha) %	-6.1	-5.6	-5.1	-4.6	-4.1	-3.6	-3.1
Sharpe	-5.7	-5.2	-4.7	-4.2	-3.7	-3.2	-2.7
Treynor	-4.3	-3.8	-3.3	-2.8	-2.3	-1.8	-1.3
Tracking Error	-1.7576	-2.8054	-1.3689	-3.1772	-3.0758	-2.9406	-2.9744

	Fund No. 28	Fund No. 29	Fund No. 30	Fund No. 31	Fund No. 32	Fund No. 33	Fund No. 34
Mean Returns	-12.7925	-13.9621	-14.3276	-14.6931	-15.2779	-17.0323	-16.3744
Standard Deviation	24.7635	27.0265	27.734	28.4415	29.5735	32.9695	31.696
Std. Dev. Of Random Error Term	11.2875	12.3195	12.642	12.9645	13.4805	15.0285	14.448
Beta	0.46	0.44	0.42	0.4	0.38	0.36	0.34
Jensen (Alpha) %	-2.6	-2.1	-1.6	-1.1	-0.6	-0.1	-0.4
Sharpe	-2.2	-1.7	-1.2	-0.7	-0.2	0.3	0.8
Trevnor	-0.8	-0.3	0.2	0.7	1.2	1.7	2.2
Tracking Error	-2.9575	-3.2279	-3.3124	-3.3969	-3.5321	-3.9377	-3.7856

	Fund No. 35	Fund No. 36	Fund No. 37	Fund No. 38	Fund No. 39	Fund No. 40	Fund No. 41
Mean Returns	-18.6405	-17.9095	-15.4241	-16.4475	-17.6171	-17.8364	-10.6726
Standard Deviation	36.0825	34.6675	29.8565	31.8375	34.1015	34.526	20.659
Std. Dev. Of Random Error Term	16.4475	15.8025	13.6095	14.5125	15.5445	15.738	9.417
Beta	0.32	-1	-0.98	-0.96	-0.94	-0.92	-0.9
Jensen (Alpha) %	-0.9	-1.4	-1.9	-2.4	-2.9	-3.4	-3.9
Sharpe	1.3	1.8	2.3	2.8	3.3	3.8	4.3
Trevnor	2.7	3.2	3.7	4.2	4.7	5.2	5.7
Tracking Error	-4.3095	-4.1495	-3.5659	-3.8025	-4.0729	-4.1256	-2.4674

	Fund No. 42	Fund No. 43	Fund No. 44	Fund No. 45	Fund No. 46	Fund No. 47	Fund No. 48
Mean Returns	-22.7341	-13.4694	-13.9548	-18.93	-16.9884	-18.2019	-10.5518
Standard Deviation	44.0065	26.07279	27.01235	36.64284	32.8846	35.2335	20.42522
Std. Dev. Of Random Error Term	20.0595	11.88477	12.31305	16.70292	14.9898	16.0695	9.310435
Beta	-0.88	-0.86	-0.84	-0.82	-0.8	-0.78	-0.76
Jensen (Alpha) %	-4.4	-4.9	-5.4	-5.9	-6.4	-6.9	-6.8
Sharpe	4.8	5.3	5.8	6.3	6.8	7.3	7.2
Trevnor	6.2	6.7	7.2	7.7	8.2	8.7	8.6
Tracking Error	-5.2559	-3.11399	-3.22621	-4.37642	-3.92756	-4.2081	-2.43948

	Fund No. 49	Fund No. 50	Fund No. 51	Fund No. 52	Fund No. 53	Fund No. 54	Fund No. 55
Mean Returns	-15.5572	-17.845	-9.19288	-23.7838	-17.5952	-24.1479	-25.968
Standard Deviation	30.1141	34.54265	17.7947	46.03844	34.05905	46.74311	50.26046
Std. Dev. Of Random Error Term	13.72692	15.74559	8.111364	20.98572	15.52515	21.30693	22.91208
Beta	-0.74	-0.72	-0.7	-0.68	-0.66	-0.64	-0.62
Jensen (Alpha) %	-6.7	-6.6	-6.5	-6.4	-6.3	-6.2	-6.1
Sharpe	7.1	7	6.9	6.8	6.7	6.6	6.5
Trevnor	8.5	8.4	8.3	8.2	8.1	8	7.9
Tracking Error	-3.59667	-4.12559	-2.1253	-5.49858	-4.06783	-5.58275	-6.00356

	Fund No. 56	Fund No. 57	Fund No. 58	Fund No. 59	Fund No. 60	Fund No. 61	Fund No. 62
Mean Returns	-10.8158	-17.4892	-21.305	-19.6091	-18.7611	-7.96955	-12.0449
Standard Deviation	20.93622	33.85388	41.24018	37.95738	36.31598	15.42669	23.31534
Std. Dev. Of Random Error Term	9.543367	15.43163	18.79853	17.30213	16.55393	7.031955	10.62784
Beta	-0.6	-0.58	-0.56	-0.54	-0.52	-0.5	-0.48
Jensen (Alpha) %	-6	-5.9	-5.8	-5.7	-5.6	-5.5	-5.4
Sharpe	6.4	6.3	6.2	6.1	6	5.9	5.8
Treynor	7.8	7.7	7.6	7.5	7.4	7.3	7.2
Tracking Error	-2.50061	-4.04333	-4.92551	-4.53343	-4.33739	-1.84248	-2.78466

	Fund No. 63	Fund No. 64
Mean Returns	-9.04613	-8.32244
Standard Deviation	17.51063	16.10978
Std. Dev. Of Random Error Term	7.981875	7.343325
Beta	-0.46	-0.44
Jensen (Alpha) %	-5.3	-5.2
Sharpe	5.7	5.6
Treynor	7.1	7
Tracking Error	-2.09138	-1.92407

Table (48): Market Portfolio

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	$(X)^2$	$(Y)^2$	(X*Y)
2006	-27.23	9.85	-37.08	-45.78	8.95	-54.73	1374.9264	2995.3729	2029.3884
2007	45.56	7.56	38	25.43	7.85	17.58	1444	309.0564	668.04
2008	-49.45	8.56	-58.01	- 36.53	6.45	-42.98	3365.1601	1847.2804	2493.2698
2009	45.78	4.74	41.04	39.45	7.25	32.2	1684.2816	1036.84	1321.488
2010	56.23	6.54	49.69	47.23	6.89	40.34	2469.0961	1627.3156	2004.4946
Sum			33.64			-7.59	10337.4642	7815.8653	8516.6808
Mean				-38.15	9.00				
Standard Deviation				49.16					

Beta	1
Jensen (Alpha) %	0.00
Sharpe	-0.80
Treynor	-29.09
Tracking Error	0.00
Std. Dev. Of Random Error Term %	0.00

Table (49): Fund No. 1

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-56.25	10.22	-66.47	45.75	8.95	36.8	4418.2609	1354.24	-2446.096
2007	-45.75	7.56	-53.31	-30.36	7.85	-38.21	2841.9561	1460.0041	2036.9751
2008	-40.45	8.56	-49.01	-36.53	6.45	-42.98	2401.9801	1847.2804	2106.4498
2009	-47.2	2.36	-49.56	39.45	7.25	32.2	2456.1936	1036.84	-1595.832
2010	56.23	5.23	51	-46.7	6.89	-53.59	2601	2871.8881	-2733.09
Sum			-167.35			-65.78	14719.3907	8570.2526	-2631.5931
Mean				-7.31	9.00				
Standard Deviation				14.15					

Table (50): Fund No. 2

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-50.25	10.22	-60.47	44.75	8.95	35.8	3656.6209	1281.64	-2164.826
2007	-40.75	7.56	-48.31	-33.36	7.85	-41.21	2333.8561	1698.2641	1990.8551
2008	-40.45	8.56	-49.01	-46.53	6.45	-52.98	2401.9801	2806.8804	2596.5498
2009	-42.2	2.36	-44.56	44.45	7.25	37.2	1985.5936	1383.84	-1657.632
2010	46.23	5.23	41	-50.7	6.89	-57.59	1681	3316.6081	-2361.19
Sum			-161.35			-78.78	12059.0507	10487.2326	-1596.2431
Mean				-7.3831	9.00				
Standard Deviation				14.2915					

Table (51): Fund No. 3

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-50.25	8.25	-58.5	44.75	9.25	35.5	3422.25	1260.25	-2076.75
2007	-40.75	6.45	-47.2	-33.36	7.85	-41.21	2227.84	1698.2641	1945.112
2008	-40.45	7.45	-47.9	-46.53	4.56	-51.09	2294.41	2610.1881	2447.211
2009	-42.2	4.23	-46.43	44.45	6.88	37.57	2155.7449	1411.5049	-1744.3751
2010	46.23	6.25	39.98	-50.7	7.45	-58.15	1598.4004	3381.4225	-2324.837
Sum			-160.05			-77.38	11698.6453	10361.6296	-1753.6391
Mean				-7.2369	9.00				
Standard Deviation				14.0085					

Table (52): Fund No. 4

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.25	8.25	-52.5	-44.25	9.25	-53.5	2756.25	2862.25	2808.75
2007	-36.55	6.45	-43	33.36	7.85	25.51	1849	650.7601	-1096.93
2008	-40.45	7.45	-47.9	-46.53	4.56	-51.09	2294.41	2610.1881	2447.211
2009	44.25	4.23	40.02	44.45	6.88	37.57	1601.6004	1411.5049	1503.5514
2010	46.23	6.25	39.98	49.25	7.45	41.8	1598.4004	1747.24	1671.164
Sum			-63.4			0.29	10099.6608	9281.9431	7333.7464
Mean				-5.0439	9.00				
Standard Deviation				9.7635					

Table (53): Fund No. 5

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-45.27	8.25	-53.52	-52.12	9.25	-61.37	2864.3904	3766.2769	3284.5224
2007	-36.55	6.45	-43	33.36	7.85	25.51	1849	650.7601	-1096.93
2008	34.52	7.45	27.07	-36.25	4.56	-40.81	732.7849	1665.4561	-1104.7267
2009	44.25	4.23	40.02	44.45	6.88	37.57	1601.6004	1411.5049	1503.5514
2010	-45.28	6.25	-51.53	-49.23	7.45	-56.68	2655.3409	3212.6224	2920.7204
Sum			-80.96			-95.78	9703.1166	10706.6204	5507.1375
Mean				-10.5995	9.00				
Standard Deviation				20.5175					

Table (54): Fund No. 6

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-45.27	8.25	-53.52	-52.12	9.25	-61.37	2864.3904	3766.2769	3284.5224
2007	-36.55	6.45	-43	33.36	7.85	25.51	1849	650.7601	-1096.93
2008	-33.12	7.45	-40.57	-36.25	4.56	-47.36	1645.9249	2242.9696	1921.3952
2009	44.25	4.23	40.02	44.45	6.88	37.57	1601.6004	1411.5049	1503.5514
2010	34.25	6.25	28	-49.23	7.45	54.36	784	2955.0096	1522.08
Sum			-69.07			8.71	8744.9157	11026.5211	7134.619
Mean				-4.0936	9.00				
Standard Deviation				7.924					

Table (55): Fund No. 7

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-45.27	7.23	-52.5	-52.12	6.23	-58.35	2756.25	3404.7225	3063.375
2007	35.24	6.45	28.79	33.36	7.85	25.51	828.8641	650.7601	734.4329
2008	-33.12	8.22	-41.34	-36.25	4.56	-47.36	1708.9956	2242.9696	1957.8624
2009	42.36	1.23	41.13	44.45	5.42	39.03	1691.6769	1523.3409	1605.3039
2010	34.25	6.25	28	-49.23	7.45	54.36	784	2955.0096	1522.08
Sum			4.08			13.19	7769.7866	10776.8027	8883.0542
Mean			-1.05995		9.00				
Standard Deviation			2.05175						

Table (56): Fund No. 8

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-45.27	7.23	-52.5	-52.12	6.23	-58.35	2756.25	3404.7225	3063.375
2007	35.24	6.45	28.79	27.25	7.85	19.4	828.8641	376.36	558.526
2008	-29.25	8.22	-37.47	-36.25	4.56	-47.36	1404.0009	2242.9696	1774.5792
2009	42.36	1.23	41.13	25.36	5.42	19.94	1691.6769	397.6036	820.1322
2010	28.36	6.25	22.11	-49.23	7.45	54.36	488.8521	2955.0096	1201.8996
Sum			2.06			-12.01	7169.644	9376.6653	7418.512
Mean			-5.6287		9.00				
Standard Deviation			10.8955						

Table (57): Fund No. 9

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-45.27	7.23	-52.5	-52.12	6.23	-58.35	2756.25	3404.7225	3063.375
2007	33.33	6.45	26.88	27.25	8.12	19.13	722.5344	365.9569	514.2144
2008	-29.25	8.22	-37.47	-36.25	4.56	-47.36	1404.0009	2242.9696	1774.5792
2009	-34.21	1.23	-35.44	25.36	6.35	19.01	1255.9936	361.3801	-673.7144
2010	28.36	6.25	22.11	-49.23	5.14	54.36	488.8521	2955.0096	1201.8996
Sum			-76.42			-13.21	6627.631	9330.0387	5880.3538
Mean			-5.7749		900				
Standard Deviation			11.1785						

Table (58): Fund No. 10

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) X = r_M- r_f	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) Y = r_p- r_f	(X)2	(Y)2	(X*Y)
2006	-45.27	7.23	-52.5	-52.12	6.23	-58.35	2756.25	3404.7225	3063.375
2007	33.33	5.25	28.08	27.25	11.02	16.23	788.4864	263.4129	455.7384
2008	-28.46	8.22	-36.68	-36.25	4.56	-47.36	1345.4224	2242.9696	1737.1648
2009	-34.21	2.36	-36.57	25.36	7.35	18.01	1337.3649	324.3601	-658.6257
2010	33.36	6.25	27.11	-49.23	5.14	54.36	734.9521	2955.0096	1473.6996
Sum			-70.56			-17.11	6962.4758	9190.4747	6071.3521
Mean			-11.4036		9.00				
Standard Deviation			22.074						

Table (59): Fund No. 11

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) X = r_M- r_f	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) Y = r_p- r_f	(X)2	(Y)2	(X*Y)
2006	-45.27	7.23	-52.5	-52.12	6.23	-58.35	2756.25	3404.7225	3063.375
2007	24.53	4.23	20.3	-27.45	10.36	-37.81	412.09	1429.5961	-767.543
2008	-36.52	8.22	-44.74	-36.25	4.56	-47.36	2001.6676	2242.9696	2118.8864
2009	-34.21	2.36	-36.57	25.36	6.58	18.78	1337.3649	352.6884	-686.7846
2010	33.36	7.52	25.84	-49.23	5.14	54.36	667.7056	2955.0096	1404.6624
Sum			-87.67			-70.38	7175.0781	10384.9862	5132.5962
Mean			-6.4328		9.00				
Standard Deviation			12.452						

Table (60): Fund No. 12

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) X = r_M- r_f	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) Y = r_p- r_f	(X)2	(Y)2	(X*Y)
2006	-45.27	7.23	-52.5	-52.12	6.23	-58.35	2756.25	3404.7225	3063.375
2007	24.53	7.12	17.41	-27.45	6.42	-33.87	303.1081	1147.1769	-589.6767
2008	-39.45	8.22	-47.67	-40.25	9.12	-47.36	2272.4289	2242.9696	2257.6512
2009	-34.21	2.36	-36.57	39.42	6.58	32.84	1337.3649	1078.4656	-1200.9588
2010	33.36	7.52	25.84	-49.23	5.14	54.36	667.7056	2955.0096	1404.6624
Sum			-93.49			-52.38	7336.8575	10828.3442	4935.0531
Mean			-5.0439		9.00				
Standard Deviation			9.7635						

Table (61): Fund No. 13

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) X = r_M- r_f	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) Y = r_p- r_f	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	6.23	-58.35	1887.0336	3404.7225	2534.724
2007	24.53	7.12	17.41	-45.23	5.43	-50.66	303.1081	2566.4356	-881.9906
2008	-39.45	7.45	-46.9	-40.25	9.12	-47.36	2199.61	2242.9696	2221.184
2009	-34.29	2.36	-36.65	38.46	6.58	31.88	1343.2225	1016.3344	-1168.402
2010	33.36	6.43	26.93	-49.23	4.12	54.36	725.2249	2955.0096	1463.9148
Sum			-82.65			-70.13	6458.1991	12185.4717	4169.4302
Mean			-4.2398		9.00				
Standard Deviation			8.207						

Table (62): Fund No. 14

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	6.23	-58.35	1887.0336	3404.7225	2534.724
2007	24.53	7.45	17.08	44.52	5.43	39.09	291.7264	1528.0281	667.6572
2008	-29.58	7.45	-37.03	-40.25	9.12	-47.36	1371.2209	2242.9696	1753.7408
2009	37.25	8.25	29	-38.25	6.58	-44.83	841	2009.7289	-1300.07
2010	-42.15	6.43	-48.58	-49.23	4.12	54.36	2360.0164	2955.0096	-2640.8088
Sum			-82.97			-57.09	6750.9973	12140.4587	1015.2432
Mean			-12.9387		9.00				
Standard Deviation			25.0455						

Table (63): Fund No. 15

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	5.01	-57.13	1887.0336	3263.8369	2481.7272
2007	47.25	7.45	39.8	44.52	5.43	39.09	1584.04	1528.0281	1555.782
2008	-29.58	7.45	-37.03	-40.25	10.25	-47.36	1371.2209	2242.9696	1753.7408
2009	37.25	9.11	28.14	-38.25	4.15	-42.4	791.8596	1797.76	-1193.136
2010	-42.15	6.43	-48.58	-49.23	4.12	54.36	2360.0164	2955.0096	-2640.8088
Sum			-61.11			-53.44	7994.1705	11787.6042	1957.3052
Mean			-10.5264		9.00				
Standard Deviation			20.376						

Table (64): Fund No. 16

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	5.01	-57.13	1887.0336	3263.8369	2481.7272
2007	47.25	7.45	39.8	44.52	5.43	39.09	1584.04	1528.0281	1555.782
2008	36.25	7.45	28.8	-47.28	10.25	-47.36	829.44	2242.9696	-1363.968
2009	-47.52	9.11	-56.63	-38.25	4.15	-42.4	3206.9569	1797.76	2401.112
2010	-42.15	6.43	-48.58	39.25	4.12	54.36	2360.0164	2955.0096	-2640.8088
Sum			-80.05			-53.44	9867.4869	11787.6042	2433.8444
Mean			-8.9182		9.00				
Standard Deviation			17.263						

Table (65): Fund No. 17

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	5.01	-57.13	1887.0336	3263.8369	2481.7272
2007	47.25	6.25	41	44.52	8.25	36.27	1681	1315.5129	1487.07
2008	-41.01	7.45	-48.46	-47.28	10.25	-47.36	2348.3716	2242.9696	2295.0656
2009	-41.77	8.22	-49.99	-38.25	3.11	-41.36	2499.0001	1710.6496	2067.5864
2010	36.39	6.43	29.96	39.25	4.12	54.36	897.6016	2955.0096	1628.6256
Sum			-70.93			-55.22	9313.0069	11487.9786	9960.0748
Mean			-9.7223		9.00				
Standard Deviation			18.8195						

Table (66): Fund No. 18

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	5.01	-57.13	1887.0336	3263.8369	2481.7272
2007	-43.25	6.25	-49.5	44.52	7.45	37.07	2450.25	1374.1849	-1834.965
2008	-51.42	6.52	-57.94	-47.28	9.11	-47.36	3357.0436	2242.9696	2744.0384
2009	47.25	7.33	39.92	-38.25	6.42	-44.67	1593.6064	1995.4089	-1783.2264
2010	36.39	6.43	29.96	39.25	4.12	54.36	897.6016	2955.0096	1628.6256
Sum			-81			-57.73	10185.5352	11831.4099	3236.1998
Mean			-8.1872		9.00				
Standard Deviation			15.848						

Table (67): Fund No. 19

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	5.01	-57.13	1887.0336	3263.8369	2481.7272
2007	-43.25	6.25	-49.5	44.52	7.45	37.07	2450.25	1374.1849	-1834.965
2008	55.36	7.24	48.12	47.4	7.73	-47.36	2315.5344	2242.9696	-2278.9632
2009	-41.15	7.33	-48.48	-38.25	6.42	-44.67	2350.3104	1995.4089	2165.6016
2010	36.39	6.43	29.96	-40.52	4.12	54.36	897.6016	2955.0096	1628.6256
Sum			-63.34			-57.73	9900.73	11831.4099	2162.0262
Mean			-11.3305		9.00				
Standard Deviation			21.9325						

Table (68): Fund No. 20

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	5.01	-57.13	1887.0336	3263.8369	2481.7272
2007	44.47	4.47	40	44.52	8.44	36.08	1600	1301.7664	1443.2
2008	-39.55	7.24	-46.79	47.4	7.73	-47.36	2189.3041	2242.9696	2215.9744
2009	-41.15	6.66	-47.81	-38.25	7.36	-45.61	2285.7961	2080.2721	2180.6141
2010	36.39	6.43	29.96	-40.52	4.12	54.36	897.6016	2955.0096	1628.6256
Sum			-68.08			-59.66	8859.7354	11843.8546	9950.1413
Mean			-12.1346		9.00				
Standard Deviation			23.489						

Table (69): Fund No. 21

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	7.45	-59.57	1887.0336	3548.5849	2587.7208
2007	48.75	4.47	44.28	44.52	8.44	36.08	1960.7184	1301.7664	1597.6224
2008	-39.55	7.24	-46.79	47.4	6.33	-47.36	2189.3041	2242.9696	2215.9744
2009	-50.14	6.66	-56.8	-38.25	7.36	-45.61	3226.24	2080.2721	2590.648
2010	36.39	6.43	29.96	-40.52	5.24	54.36	897.6016	2955.0096	1628.6256
Sum			-72.79			-62.1	10160.8977	12128.6026	10620.5912
Mean			-7.6024		9.00				
Standard Deviation			14.716						

Table (70): Fund No. 22

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	7.45	-59.57	1887.0336	3548.5849	2587.7208
2007	48.75	4.47	44.28	44.52	8.44	36.08	1960.7184	1301.7664	1597.6224
2008	-45.72	7.24	-52.96	47.4	6.33	-47.36	2804.7616	2242.9696	2508.1856
2009	-50.14	6.66	-56.8	-38.25	7.36	-44.7	3226.24	1998.09	2538.96
2010	-45.73	6.43	-52.16	-40.52	5.24	54.36	2720.6656	2955.0096	-2835.4176
Sum			-161.08			-61.19	12599.4192	12046.4205	6397.0712
Mean			-12.1346		9.00				
Standard Deviation			23.489						
-32.33									

Table (71): Fund No. 23

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	7.45	-59.57	1887.0336	3548.5849	2587.7208
2007	33.33	4.47	28.86	44.52	8.24	36.28	832.8996	1316.2384	1047.0408
2008	44.33	7.24	37.09	47.4	5.22	-47.36	1375.6681	2242.9696	-1756.5824
2009	-50.14	6.66	-56.8	-38.25	7.36	-44.7	3226.24	1998.09	2538.96
2010	-45.73	6.43	-52.16	-40.52	4.23	54.36	2720.6656	2955.0096	-2835.4176
Sum			-86.45			-60.99	10042.5069	12060.8925	1581.7216
Mean			-5.9211		9.00				
Standard Deviation			11.4615						

Table (72): Fund No. 24

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	7.45	-59.57	1887.0336	3548.5849	2587.7208
2007	46.66	4.47	42.19	44.52	8.24	36.28	1779.9961	1316.2384	1530.6532
2008	-48.75	7.24	-55.99	-37.27	5.22	-47.36	3134.8801	2242.9696	2651.6864
2009	-50.14	6.66	-56.8	-38.25	6.25	-44.7	3226.24	1998.09	2538.96
2010	-45.73	6.43	-52.16	-40.52	4.23	54.36	2720.6656	2955.0096	-2835.4176
Sum			-166.2			-60.99	12748.8154	12060.8925	6473.6028
Mean			-13.7428		9.00				
Standard Deviation			26.602						

Table (73): Fund No. 25

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	8.22	-60.34	1887.0336	3640.9156	2621.1696
2007	-49.28	5.17	-54.45	44.52	8.24	36.28	2964.8025	1316.2384	-1975.446
2008	-48.75	9.1	-57.85	-39.29	5.22	-47.36	3346.6225	2242.9696	2739.776
2009	28.35	6.66	21.69	-38.25	7.18	-44.7	470.4561	1998.09	-969.543
2010	-45.73	6.43	-52.16	-41.25	4.23	54.36	2720.6656	2955.0096	-2835.4176
Sum			-186.21			-61.76	11389.5803	12153.2232	-419.461
Mean			-13.3042		9.00				
Standard Deviation			25.753						

Table (74): Fund No. 26

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.23	-43.44	-52.12	8.22	-60.34	1887.0336	3640.9156	2621.1696
2007	-44.48	5.17	-49.65	44.52	8.24	36.28	2465.1225	1316.2384	-1801.302
2008	38.39	8.14	30.25	-41.17	5.22	-47.36	915.0625	2242.9696	-1432.64
2009	28.35	5.22	23.13	-38.25	7.18	-44.7	534.9969	1998.09	-1033.911
2010	-45.73	6.43	-52.16	-41.25	4.23	54.36	2720.6656	2955.0096	-2835.4176
Sum			-91.87			-61.76	8522.8811	12153.2232	-4482.101
Mean			-12.7194		9.00				
Standard Deviation			24.621						

Table (75): Fund No. 27

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	8.12	-44.33	-52.12	9.15	-61.27	1965.1489	3754.0129	2716.0991
2007	-44.48	5.17	-49.65	44.52	8.24	36.28	2465.1225	1316.2384	-1801.302
2008	38.39	7.45	30.94	-41.17	8.11	-47.36	957.2836	2242.9696	-1465.3184
2009	28.35	5.22	23.13	-38.25	6.13	-44.7	534.9969	1998.09	-1033.911
2010	-45.73	6.43	-52.16	-41.25	4.23	54.36	2720.6656	2955.0096	-2835.4176
Sum			-92.07			-62.69	8643.2175	12266.3205	-4419.8499
Mean		-12.8656			9.00				
Standard Deviation		24.904							

Table (76): Fund No. 28

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	8.12	-44.33	-52.12	9.15	-61.27	1965.1489	3754.0129	2716.0991
2007	44.47	5.17	39.3	44.52	8.24	36.28	1544.49	1316.2384	1425.804
2008	-47.25	7.45	-54.7	-41.17	8.11	-47.36	2992.09	2242.9696	2590.592
2009	28.35	5.22	23.13	36.25	6.13	-44.7	534.9969	1998.09	-1033.911
2010	49.58	6.43	43.15	-41.25	4.23	54.36	1861.9225	2955.0096	2345.634
Sum			6.55			-62.69	8898.6483	12266.3205	8044.2181
Mean			-12.7925		9.00				
Standard Deviation			24.7625						

Table (77): Fund No. 29

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	8.12	-44.33	-52.12	9.15	-61.27	1965.1489	3754.0129	2716.0991
2007	48.39	5.17	43.22	44.52	8.24	36.28	1867.9684	1316.2384	1568.0216
2008	-47.25	7.45	-54.7	-44.47	8.11	-47.36	2992.09	2242.9696	2590.592
2009	35.25	5.22	30.03	36.25	6.13	-44.7	901.8009	1998.09	-1342.341
2010	49.58	6.43	43.15	-47.25	4.23	54.36	1861.9225	2955.0096	2345.634
Sum			17.37			-62.69	9588.9307	12266.3205	7878.0057
Mean			-13.9621		9.00				
Standard Deviation			27.0265						

Table (78): Fund No. 30

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	8.12	-44.33	-52.12	9.15	-61.27	1965.1489	3754.0129	2716.0991
2007	44.75	5.17	39.58	-36.39	8.24	-44.63	1566.5764	1991.8369	-1766.4554
2008	-47.25	7.45	-54.7	-44.47	8.11	-47.36	2992.09	2242.9696	2590.592
2009	33.33	5.22	28.11	44.44	6.13	-44.7	790.1721	1998.09	-1256.517
2010	49.58	6.43	43.15	-47.25	4.23	54.36	1861.9225	2955.0096	2345.634
Sum			11.81			-143.6	9175.9099	12941.919	4629.3527
Mean			-14.3276		9.00				
Standard Deviation			27.734						

Table (79): Fund No. 31

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	9.1	-45.31	-52.12	10.45	-62.57	2052.9961	3915.0049	2835.0467
2007	44.75	5.17	39.58	-36.39	8.24	-44.63	1566.5764	1991.8369	-1766.4554
2008	-47.25	8.45	-55.7	-44.47	7.45	-47.36	3102.49	2242.9696	2637.952
2009	33.33	8.44	24.89	44.44	9.14	-44.7	619.5121	1998.09	-1112.583
2010	49.58	6.43	43.15	-47.25	4.23	54.36	1861.9225	2955.0096	2345.634
Sum			6.61			-144.9	9203.4971	13102.911	4939.5943
Mean			-14.6931		9.00				
Standard Deviation			28.4415						

Table (80): Fund No.32

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	9.1	-45.31	-52.12	10.45	-62.57	2052.9961	3915.0049	2835.0467
2007	51.42	5.17	46.25	-36.39	8.24	-44.63	2139.0625	1991.8369	-2064.1375
2008	-47.25	8.45	-55.7	-44.47	7.45	-47.36	3102.49	2242.9696	2637.952
2009	40.36	8.44	31.92	39.55	9.14	-44.7	1018.8864	1998.09	-1426.824
2010	49.58	6.43	43.15	-47.25	4.23	54.36	1861.9225	2955.0096	2345.634
Sum			20.31			-144.9	10175.3575	13102.911	4327.6712
Mean			-15.2779		9.00				
Standard Deviation			29.5735						

Table (81): Fund No. 33

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	9.1	-45.31	-48.48	10.45	-58.93	2052.9961	3472.7449	2670.1183
2007	51.42	5.17	46.25	-36.39	8.24	-44.63	2139.0625	1991.8369	-2064.1375
2008	-39.45	8.45	-47.9	-44.47	7.45	-47.36	2294.41	2242.9696	2268.544
2009	40.36	8.44	31.92	39.55	9.14	-44.7	1018.8864	1998.09	-1426.824
2010	-40.15	6.43	-46.58	-47.25	4.23	54.36	2169.6964	2955.0096	-2532.0888
Sum	-36.21	9.1	-45.31	-48.48	10.45	-58.93	2052.9961	3472.7449	2670.1183
Mean			-17.0323		9.00				
Standard Deviation			32.9695						

Table (82): Fund No. 34

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	9.1	-45.31	-48.48	10.45	-58.93	2052.9961	3472.7449	2670.1183
2007	33.36	5.17	28.19	-46.55	8.24	-54.79	794.6761	3001.9441	-1544.5301
2008	-39.45	8.45	-47.9	-44.47	7.45	-47.36	2294.41	2242.9696	2268.544
2009	41.25	8.44	32.81	40.22	9.14	-44.7	1076.4961	1998.09	-1466.607
2010	-40.15	6.43	-46.58	-47.25	4.23	54.36	2169.6964	2955.0096	-2532.0888
Sum			-78.79			-151.42	8388.2747	13670.7582	-604.5636
Mean			-16.3744		9.00				
Standard Deviation			31.696						

Table (83): Fund No. 35

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.45	-43.66	-48.48	9.13	-57.61	1906.1956	3318.9121	2515.2526
2007	33.36	5.17	28.19	-46.55	7.55	-54.1	794.6761	2926.81	-1525.079
2008	-39.45	8.5	-47.95	-44.47	7.45	-47.36	2299.2025	2242.9696	2270.912
2009	41.25	4.25	37	40.22	8.44	-44.7	1369	1998.09	-1653.9
2010	-40.15	6.43	-46.58	-47.25	4.23	54.36	2169.6964	2955.0096	-2532.0888
Sum			-73			-149.41	8538.7706	13441.7913	-924.9032
Mean			-18.6405		9.00				
Standard Deviation			36.0825						

Table (84): Fund No. 36

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.45	-43.66	-48.48	10.45	-58.93	1906.1956	3472.7449	2572.8838
2007	33.36	5.17	28.19	-46.55	7.55	-54.1	794.6761	2926.81	-1525.079
2008	-39.45	8.5	-47.95	-44.47	5.22	-47.36	2299.2025	2242.9696	2270.912
2009	41.25	4.25	37	40.22	8.44	-44.7	1369	1998.09	-1653.9
2010	-40.15	6.43	-46.58	-47.25	4.23	54.36	2169.6964	2955.0096	-2532.0888
Sum			-73			-150.73	8538.7706	13595.6241	-867.272
Mean			-17.9095		9.00				
Standard Deviation			34.6675						

Table (85): Fund No. 37

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.45	-43.66	-48.48	10.45	-58.93	1906.1956	3472.7449	2572.8838
2007	33.36	5.17	28.19	-46.55	7.55	-54.1	794.6761	2926.81	-1525.079
2008	-39.45	8.5	-47.95	-45.75	5.22	-4.83	2299.2025	23.3289	231.5985
2009	41.25	6.36	34.89	40.22	8.44	-49.27	1217.3121	2427.5329	-1719.0303
2010	-40.15	6.43	-46.58	-47.25	4.23	44.44	2169.6964	1974.9136	-2070.0152
Sum			-75.11			-122.69	8387.0827	10825.3303	-2509.6422
Mean			-15.4241		9.00				
Standard Deviation			29.8565						

Table (86): Fund No. 38

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.45	-43.66	-48.48	10.45	-58.93	1906.1956	3472.7449	2572.8838
2007	33.36	5.17	28.19	-46.55	7.55	-54.1	794.6761	2926.81	-1525.079
2008	-39.45	8.5	-47.95	-45.75	9.11	-54.86	2299.2025	3009.6196	2630.537
2009	41.25	7.32	33.93	40.22	8.44	31.78	1151.2449	1009.9684	1078.2954
2010	-40.15	6.43	-46.58	-47.25	4.23	-51.48	2169.6964	2650.1904	2397.9384
Sum			-76.07			-187.59	8321.0155	13069.3333	7154.5756
Mean			-16.4475		9.00				
Standard Deviation			31.8375						

Table (87): Fund No. 39

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-36.21	7.45	-43.66	-48.48	10.45	-58.93	1906.1956	3472.7449	2572.8838
2007	33.36	5.17	33.36	44.36	7.55	36.81	1112.8896	1354.9761	1227.9816
2008	-39.45	8.5	-47.95	-45.75	7.53	-53.28	2299.2025	2838.7584	2554.776
2009	41.25	7.32	33.93	40.22	8.44	31.78	1151.2449	1009.9684	1078.2954
2010	-40.15	5.22	-45.37	-47.25	4.23	-51.48	2058.4369	2650.1904	2335.6476
Sum			-69.69			-95.1	8527.9695	11326.6382	9769.5844
Mean			-17.6171		9.00				
Standard Deviation			34.1015						

Table (88): Fund No. 40

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	7.45	-51.9	-48.48	10.45	-58.93	2693.61	3472.7449	3058.467
2007	39.36	5.17	33.36	44.36	9.1	35.26	1112.8896	1243.2676	1176.2736
2008	-39.45	8.5	-47.95	-45.75	7.53	-53.28	2299.2025	2838.7584	2554.776
2009	41.25	8.02	33.23	40.22	5.14	35.08	1104.2329	1230.6064	1165.7084
2010	-40.15	5.22	-45.37	-47.25	4.23	-51.48	2058.4369	2650.1904	2335.6476
Sum			-78.63			-93.35	9268.3719	11435.5677	10290.8726
Mean			-17.8364		9.00				
Standard Deviation			34.526						

Table (89): Fund No. 41

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	7.45	-51.9	-48.48	10.45	-58.93	2693.61	3472.7449	3058.467
2007	39.36	5.17	33.36	44.36	8.44	35.92	1112.8896	1290.2464	1198.2912
2008	-39.45	8.5	-47.95	-45.75	9.12	-54.87	2299.2025	3010.7169	2631.0165
2009	41.25	9.11	32.14	40.22	5.14	35.08	1032.9796	1230.6064	1127.4712
2010	-40.15	5.22	-45.37	-47.25	4.23	-51.48	2058.4369	2650.1904	2335.6476
Sum			-79.72			-94.28	9197.1186	11654.505	10350.8935
Mean			-10.6726		9.00				
Standard Deviation			20.659						

Table (90): Fund No. 42

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	7.45	-51.9	-48.48	10.45	-58.93	2693.61	3472.7449	3058.467
2007	39.36	4.11	33.36	44.36	8.44	35.92	1112.8896	1290.2464	1198.2912
2008	-39.45	8.5	-47.95	-45.75	8.58	-54.33	2299.2025	2951.7489	2605.1235
2009	41.25	7.44	33.81	40.22	5.14	35.08	1143.1161	1230.6064	1186.0548
2010	-40.15	5.22	-45.37	-47.25	4.23	-51.48	2058.4369	2650.1904	2335.6476
Sum			-78.05			-93.74	9307.2551	11595.537	10383.5841
Mean			-22.7341		9.00				
Standard Deviation			44.0065						

Table (91): Fund No. 43

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	7.45	-51.9	-48.48	10.45	-58.93	2693.61	3472.7449	3058.467
2007	41.25	4.11	33.36	44.36	8.44	35.92	1112.8896	1290.2464	1198.2912
2008	-39.45	4.58	-44.03	45.47	8.58	36.89	1938.6409	1360.8721	-1624.2667
2009	41.25	7.44	33.81	-40.25	5.14	-45.39	1143.1161	2060.2521	-1534.6359
2010	-40.15	5.22	-45.37	-47.25	4.23	-51.48	2058.4369	2650.1904	2335.6476
Sum			-74.13			-82.99	8946.6935	10834.3059	3433.5032
Mean			-13.4694		9.00				
Standard Deviation			26.07279						

Table (92): Fund No. 44

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	7.45	-51.9	-48.48	10.45	-58.93	2693.61	3472.7449	3058.467
2007	41.25	4.11	33.36	44.36	8.44	35.92	1112.8896	1290.2464	1198.2912
2008	33.25	4.58	28.67	45.47	8.58	36.89	821.9689	1360.8721	1057.6363
2009	-47.36	7.44	-54.8	-44.23	5.14	-49.37	3003.04	2437.3969	2705.476
2010	-40.15	5.22	-45.37	-47.25	4.23	-51.48	2058.4369	2650.1904	2335.6476
Sum			-90.04			-86.97	9689.9454	11211.4507	10355.5181
Mean			-13.9548		9.00				
Standard Deviation			27.01235						

Table (93): Fund No. 45

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	7.45	-51.9	-48.48	10.45	-58.93	2693.61	3472.7449	3058.467
2007	-45.39	4.11	-49.5	44.36	8.44	35.92	2450.25	1290.2464	-1778.04
2008	33.25	5.33	27.92	-45.58	8.58	-54.16	779.5264	2933.3056	-1512.1472
2009	-47.36	7.44	-54.8	-44.23	5.14	-49.37	3003.04	2437.3969	2705.476
2010	-40.15	5.22	-45.37	-47.25	4.23	-51.48	2058.4369	2650.1904	2335.6476
Sum			-173.65			-178.02	10984.8633	12783.8842	4809.4034
Mean			-18.93		9.00				
Standard Deviation			36.64284						

Table (94): Fund No. 46

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	7.45	-51.9	-48.48	8.59	-57.07	2693.61	3256.9849	2961.933
2007	-45.39	5.55	-50.94	44.36	8.44	35.92	2594.8836	1290.2464	-1829.7648
2008	33.25	6.66	26.59	-45.58	3.32	-48.9	707.0281	2391.21	-1300.251
2009	-47.36	7.44	-54.8	-44.23	5.14	-49.37	3003.04	2437.3969	2705.476
2010	-40.15	8.44	-48.59	-47.25	4.23	-51.48	2360.9881	2650.1904	2501.4132
Sum			-179.64			-170.9	11359.5498	12026.0286	5038.8064
Mean			-16.9884		9.00				
Standard Deviation			32.8846						

Table (95): Fund No. 47

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	7.45	-51.9	-48.48	8.59	-57.07	2693.61	3256.9849	2961.933
2007	-45.39	5.55	-50.94	44.36	8.44	35.92	2594.8836	1290.2464	-1829.7648
2008	33.25	5.36	27.89	-45.58	3.32	47.36	777.8521	2242.9696	1320.8704
2009	42.35	7.44	34.91	-44.23	5.14	-49.37	1218.7081	2437.3969	-1723.5067
2010	-40.15	8.44	-48.59	-47.25	8.25	-55.5	2360.9881	3080.25	2696.745
Sum			-88.63			-78.66	9646.0419	12307.8478	3426.2769
Mean			-18.2019		9.00				
Standard Deviation			35.2335						

Table (96): Fund No. 48

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	8.22	-52.67	-48.48	8.59	-57.07	2774.1289	3256.9849	3005.8769
2007	-45.39	5.55	-50.94	44.36	8.44	35.92	2594.8836	1290.2464	-1829.7648
2008	33.25	8.11	25.14	-45.58	7.36	-52.94	632.0196	2802.6436	-1330.9116
2009	42.35	7.44	34.91	-44.23	5.14	-49.37	1218.7081	2437.3969	-1723.5067
2010	-40.15	9.11	-49.26	-47.25	7.44	-54.69	2426.5476	2990.9961	2694.0294
Sum			-92.82			-178.15	9646.2878	12778.2679	815.7232
Mean			-10.5518		9.00				
Standard Deviation			20.42522						

Table (97): Fund No. 49

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	8.22	-52.67	-48.48	8.59	-57.07	2774.1289	3256.9849	3005.8769
2007	45.75	5.55	40.2	44.36	8.44	35.92	1616.04	1290.2464	1443.984
2008	33.25	8.11	25.14	45.36	7.36	38	632.0196	1444	955.32
2009	-49.45	8.2	-57.65	-44.23	5.14	-49.37	3323.5225	2437.3969	2846.1805
2010	-40.15	9.11	-49.26	-45.46	7.44	-52.9	2426.5476	2798.41	2605.854
Sum			-94.24			-85.42	10772.2586	11227.0382	10857.2154
Mean			-15.5572		9.00				
Standard Deviation			30.1141						

Table (98): Fund No. 50

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	8.22	-52.67	-48.48	8.59	-57.07	2774.1289	3256.9849	3005.8769
2007	45.75	5.55	40.2	44.36	8.44	35.92	1616.04	1290.2464	1443.984
2008	39.39	8.11	31.28	-48.39	7.36	-55.75	978.4384	3108.0625	-1743.86
2009	-49.45	8.2	-57.65	45.75	5.14	40.61	3323.5225	1649.1721	-2341.1665
2010	-40.15	9.11	-49.26	-45.46	7.44	-52.9	2426.5476	2798.41	2605.854
Sum			-88.1			-89.19	11118.6774	12102.8759	2970.6884
Mean			-17.845		9.00				
Standard Deviation			34.54265						

Table (99): Fund No. 51

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	8.22	-52.67	-48.48	8.59	-57.07	2774.1289	3256.9849	3005.8769
2007	45.75	6.66	39.09	44.36	6.69	37.67	1528.0281	1419.0289	1472.5203
2008	44.56	5.45	39.11	-48.39	7.36	-55.75	1529.5921	3108.0625	-2180.3825
2009	-49.45	7.45	-56.9	45.75	8.15	37.6	3237.61	1413.76	-2139.44
2010	-40.15	9.11	-49.26	-45.46	7.44	-52.9	2426.5476	2798.41	2605.854
Sum			-80.63			-90.45	11495.9067	11996.2463	2764.4287
Mean			-9.19288		9.00				
Standard Deviation			17.7947						

Table (100): Fund No. 52

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	8.22	-52.67	-48.48	8.59	-57.07	2774.1289	3256.9849	3005.8769
2007	45.75	6.66	39.09	44.36	6.69	37.67	1528.0281	1419.0289	1472.5203
2008	-48.52	5.45	-53.97	-48.39	7.36	-55.75	2912.7609	3108.0625	3008.8275
2009	45.45	7.45	38	45.75	8.15	37.6	1444	1413.76	1428.8
2010	-40.15	9.11	-49.26	-45.46	7.44	-52.9	2426.5476	2798.41	2605.854
Sum			-78.81			-90.45	11085.4655	11996.2463	11521.8787
Mean			-23.7838		9.00				
Standard Deviation			46.03844						

Table (101): Fund No. 53

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	8.22	-52.67	-48.48	8.59	-57.07	2774.1289	3256.9849	3005.8769
2007	45.75	7.74	38.01	44.36	6.69	37.67	1444.7601	1419.0289	1431.8367
2008	-48.52	5.45	-53.97	-48.39	6.36	-54.75	2912.7609	2997.5625	2954.8575
2009	45.45	8.45	37	45.75	6.63	39.12	1369	1530.3744	1447.44
2010	-40.15	9.11	-49.26	-45.46	7.44	-52.9	2426.5476	2798.41	2605.854
Sum			-80.89			-87.93	10927.1975	12002.3607	11445.8651
Mean			-17.5952		9.00				
Standard Deviation			34.05905						

Table (102): Fund No. 54

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	8.22	-52.67	-48.48	8.59	-57.07	2774.1289	3256.9849	3005.8769
2007	51.52	7.74	43.78	47.25	6.69	40.56	1916.6884	1645.1136	1775.7168
2008	-48.52	5.45	-53.97	-48.39	6.36	-54.75	2912.7609	2997.5625	2954.8575
2009	52.23	8.45	43.78	44.44	6.63	37.81	1916.6884	1429.5961	1655.3218
2010	-40.15	9.11	-49.26	-45.46	7.44	-52.9	2426.5476	2798.41	2605.854
Sum			-68.34			-86.35	11946.8142	12127.6671	11997.627
Mean			-24.1479		9.00				
Standard Deviation			46.74311						

Table (103): Fund No. 55

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	8.22	-52.67	-48.48	8.59	-57.07	2774.1289	3256.9849	3005.8769
2007	51.52	7.74	43.78	47.25	6.69	40.56	1916.6884	1645.1136	1775.7168
2008	-48.52	6.66	-55.18	-48.39	7.77	-56.16	3044.8324	3153.9456	3098.9088
2009	51.36	8.45	42.91	44.44	6.63	37.81	1841.2681	1429.5961	1622.4271
2010	-40.15	9.11	-49.26	-45.46	7.44	-52.9	2426.5476	2798.41	2605.854
Sum			-70.42			-87.76	12003.4654	12284.0502	12108.7836
Mean			-25.968		9.00				
Standard Deviation			50.26646						

Table (104): Fund No. 56

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	8.22	-52.67	-48.48	8.59	-57.07	2774.1289	3256.9849	3005.8769
2007	51.52	6.33	45.19	47.25	8.52	38.73	2042.1361	1500.0129	1750.2087
2008	-48.52	6.66	-55.18	-48.39	7.77	-56.16	3044.8324	3153.9456	3098.9088
2009	51.36	7.22	44.14	44.44	5.55	38.89	1948.3396	1512.4321	1716.6046
2010	-40.15	9.11	-49.26	-45.46	7.44	-52.9	2426.5476	2798.41	2605.854
Sum			-67.78			-88.51	12235.9846	12221.7855	12177.453
Mean			-10.8158		9.00				
Standard Deviation			20.93622						

Table (105): Fund No. 57

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	8.22	-52.67	-48.48	5.99	-54.47	2774.1289	2966.9809	2868.9349
2007	51.52	6.33	45.19	47.25	8.52	38.73	2042.1361	1500.0129	1750.2087
2008	-48.52	7.74	-56.26	-48.39	6.63	-55.02	3165.1876	3027.2004	3095.4252
2009	51.36	8.85	42.51	44.44	6.54	37.9	1807.1001	1436.41	1611.129
2010	-40.15	9.11	-49.26	-45.46	7.44	-52.9	2426.5476	2798.41	2605.854
Sum			-70.49			-85.76	12215.1003	11729.0142	11931.5518
Mean			-17.4892		9.00				
Standard Deviation			33.85388						

Table (106): Fund No. 58

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	7.58	-52.03	-48.48	5.99	-54.47	2707.1209	2966.9809	2834.0741
2007	51.52	6.33	45.19	47.25	8.52	38.73	2042.1361	1500.0129	1750.2087
2008	-48.52	6.66	-55.18	-48.39	6.63	-55.02	3044.8324	3027.2004	3036.0036
2009	51.36	9.12	42.24	44.44	6.78	37.66	1784.2176	1418.2756	1590.7584
2010	-40.15	8.55	-48.7	-45.46	7.44	-52.9	2371.69	2798.41	2576.23
Sum			-68.48			-86	11949.997	11710.8798	11787.2748
Mean			-21.305		9.00				
Standard Deviation			41.24018						

Table (107): Fund No. 59

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	7.58	-52.03	-48.48	5.99	-54.47	2707.1209	2966.9809	2834.0741
2007	51.52	6.33	45.19	47.25	8.52	38.73	2042.1361	1500.0129	1750.2087
2008	-44.66	6.66	-51.32	-46.58	6.63	-53.21	2633.7424	2831.3041	2730.7372
2009	50.68	9.12	41.56	33.39	6.78	26.61	1727.2336	708.0921	1105.9116
2010	-40.15	8.55	-48.7	-45.46	7.44	-52.9	2371.69	2798.41	2576.23
Sum			-65.3			-95.24	11481.923	10804.8	10997.1616
Mean			-19.6091		9.00				
Standard Deviation			37.95738						

Table (108): Fund No. 60

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	7.58	-52.03	-48.48	7.69	-56.17	2707.1209	3155.0689	2922.5251
2007	51.52	6.33	45.19	47.25	6.66	40.59	2042.1361	1647.5481	1834.2621
2008	-44.66	7.77	-52.43	-46.58	5.55	-52.13	2748.9049	2717.5369	2733.1759
2009	50.68	8.88	41.8	33.39	6.78	26.61	1747.24	708.0921	1112.298
2010	-40.15	8.55	-48.7	-45.46	7.44	-52.9	2371.69	2798.41	2576.23
Sum			-66.17			-94	11617.0919	11026.656	11178.4911
Mean			-18.7611		9.00				
Standard Deviation			36.31598						

Table (109): Fund No. 61

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	6.21	-50.66	-48.48	7.69	-56.17	2566.4356	3155.0689	2845.5722
2007	51.52	6.33	45.19	46.46	5.69	40.77	2042.1361	1662.1929	1842.3963
2008	-44.66	8.56	-53.22	-46.58	7.77	-54.35	2832.3684	2953.9225	2892.507
2009	46.56	6.55	40.01	33.39	6.78	26.61	1600.8001	708.0921	1064.6661
2010	-40.15	8.55	-48.7	-45.46	7.44	-52.9	2371.69	2798.41	2576.23
Sum			-67.38			-96.04	11413.4302	11277.6864	11221.3716
Mean			-7.96955		9.00				
Standard Deviation			15.42669						

Table (110): Fund No. 62

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	6.21	-50.66	-48.48	7.69	-56.17	2566.4356	3155.0689	2845.5722
2007	43.56	5.33	38.23	46.46	5.69	40.77	1461.5329	1662.1929	1558.6371
2008	-47.47	6.39	-53.86	-51.23	7.77	-59	2900.8996	3481	3177.74
2009	46.56	7.53	39.03	55.46	6.78	48.68	1523.3409	2369.7424	1899.9804
2010	-40.15	8.55	-48.7	-45.46	7.44	-52.9	2371.69	2798.41	2576.23
Sum			-75.96			-78.62	10823.899	13466.4142	12058.1597
Mean			-12.0449		9.00				
Standard Deviation			23.31534						

Table (111): Fund No. 63

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-44.45	8.15	-52.6	-48.48	7.69	-56.17	2766.76	3155.0689	2954.542
2007	43.56	5.33	38.23	46.46	6.69	39.77	1461.5329	1581.6529	1520.4071
2008	-47.47	9.11	-56.58	-51.23	8.12	-59.35	3201.2964	3522.4225	3358.023
2009	46.56	7.53	39.03	55.46	6.78	48.68	1523.3409	2369.7424	1899.9804
2010	-40.15	7.44	-47.59	-45.46	7.54	-53	2264.8081	2809	2522.27
Sum			-79.51			-80.07	11217.7383	13437.8867	12255.2225
Mean			-9.04613		9.00				
Standard Deviation			17.51063						

Table (112): Fund No. 64

Year	Index Return (%) r_M	T.Bills Rate (%)	Excess Return (%) $X = r_M - r_f$	Fund Return (%)	T.Bills Rate (%)	Excess Return (%) $Y = r_p - r_f$	(X)2	(Y)2	(X*Y)
2006	-47.85	8.24	-56.09	-48.48	7.69	-56.17	3146.0881	3155.0689	3150.5753
2007	43.56	5.33	38.23	43.56	6.69	36.87	1461.5329	1359.3969	1409.5401
2008	-35.36	8.12	-43.48	-49.36	8.12	-57.48	1890.5104	3303.9504	2499.2304
2009	46.56	6.76	39.8	36.93	6.78	30.15	1584.04	909.0225	1199.97
2010	-39.69	7.44	-47.13	-45.46	7.54	-53	2221.2369	2809	2497.89
Sum			-68.67			-99.63	10303.4083	11536.4387	10757.2058
Mean			-8.32244		9.00				
Standard Deviation			16.10978						

15.2 Figures

Figure (3)
The graph of the first differences values of the close stock price of

Al Baraka Bank Egypt,

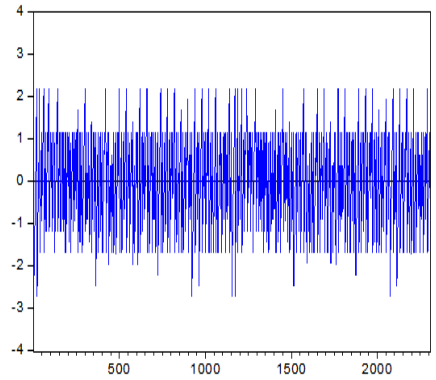

Figure (4)
The actual, estimated and residuals of the estimated time series of the first differences values of the close stock price of Al Baraka Bank Egypt using ARMA(1,1)

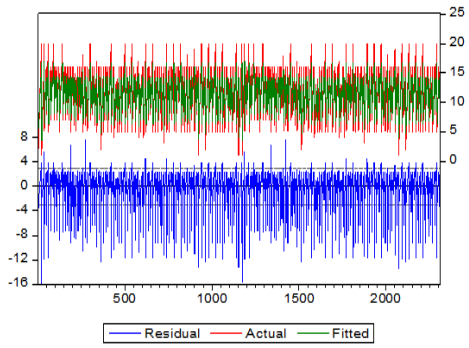

Figure (5)
The graph of the first differences values of the close stock price of

Abu Dhabi Islamic Bank- Egypt,

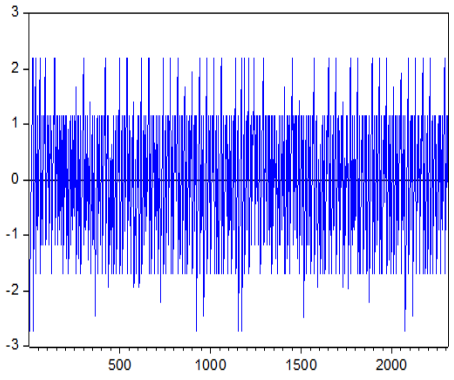

Figure (6)
The actual, estimated and residuals of the estimated time series of the first differences values of the close stock price of Abu Dhabi Islamic Bank- Egypt using ARMA(1,1)

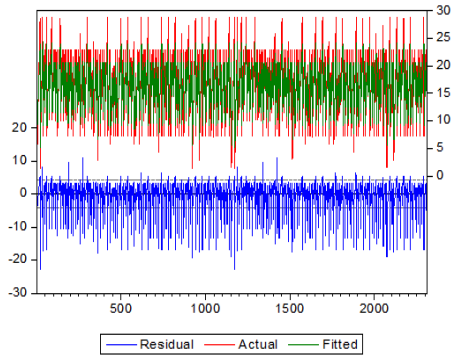

Figure (7)
The graph of the first differences values of the close stock price of Commercial International Bank (Egypt),

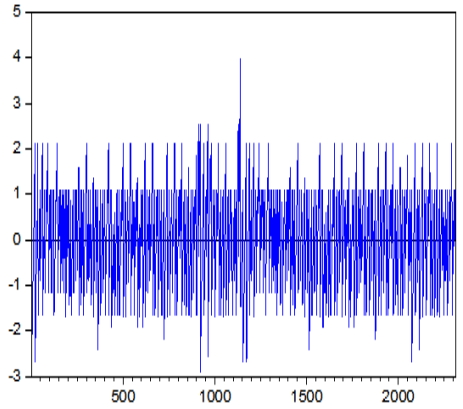

Figure (8)
The actual, estimated and residuals of the estimated time series of the first differences values of the close stock price of Commercial International Bank (Egypt) using ARMA(1,1)

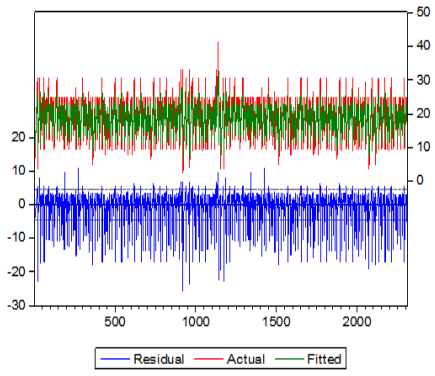

Figure (9)
The graph of the first differences values of the close stock price of
Credit Agricole Egypt,

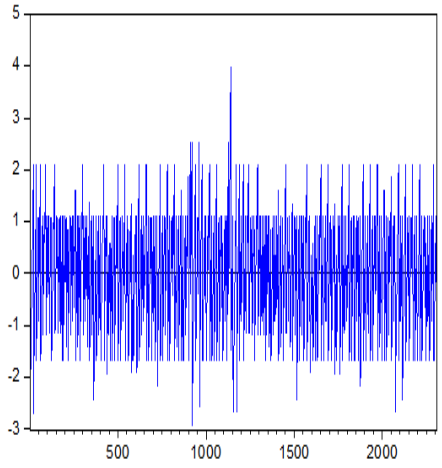

Figure (10)
The actual, estimated and residuals of the estimated time series of the first differences values of the close stock price of Credit Agricole Egypt using ARMA(1,1)

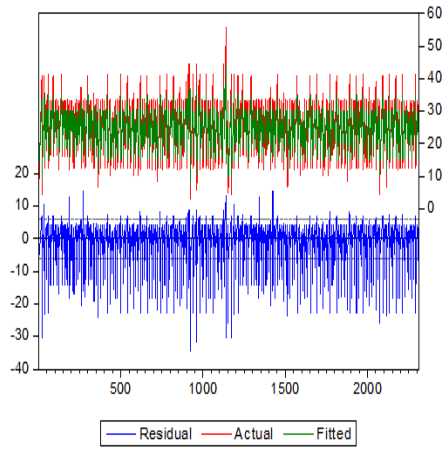

Figure (11)

The graph of the first differences values of the close stock price of El Watany Bank of Egypt,

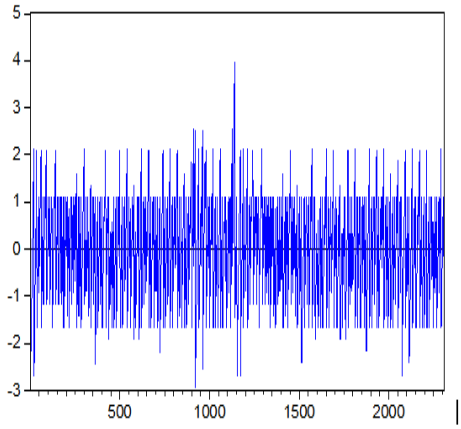

Figure (12)

The actual, estimated and residuals of the estimated time series of the first differences values of the close stock price of El Watany Bank of Egypt using ARMA(1,1)

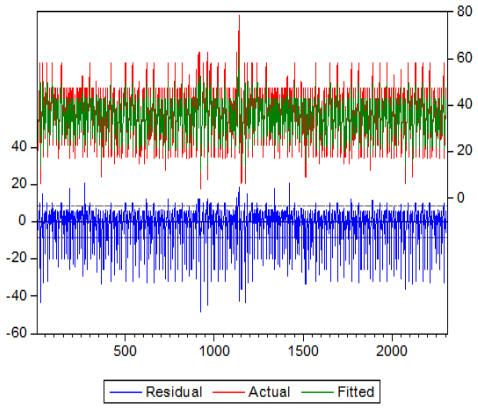

Figure (13)

The graph of the first differences values of the close stock price of Faisal Islamic Bank of Egypt - In US Dollars,

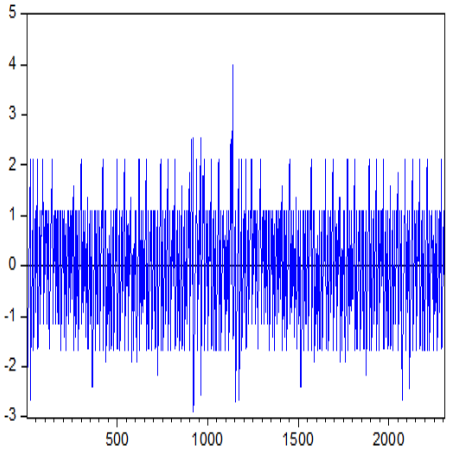

Figure (14)

The actual, estimated and residuals of the estimated time series of the first differences values of the close stock price of Faisal Islamic Bank of Egypt - In US Dollars using ARMA (1,1)

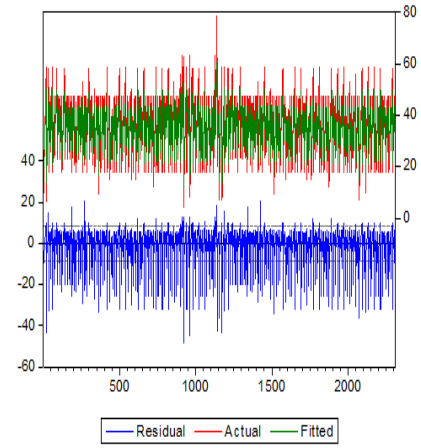

Figure (15)
The graph of the first differences values of the close stock price of National Societe Generale Bank (NSGB),

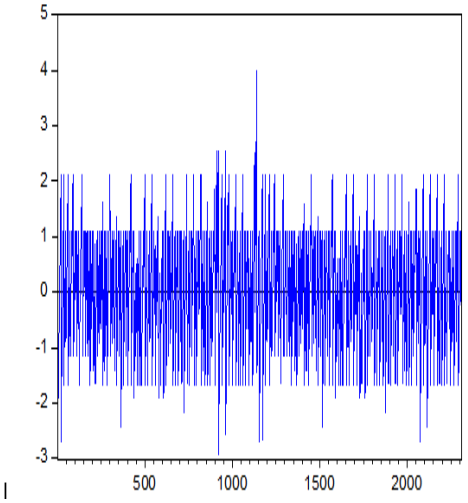

Figure (16)
The actual, estimated and residuals of the estimated time series of the first differences values of the close stock price of National Societe Generale Bank (NSGB) using ARMA (1,1)

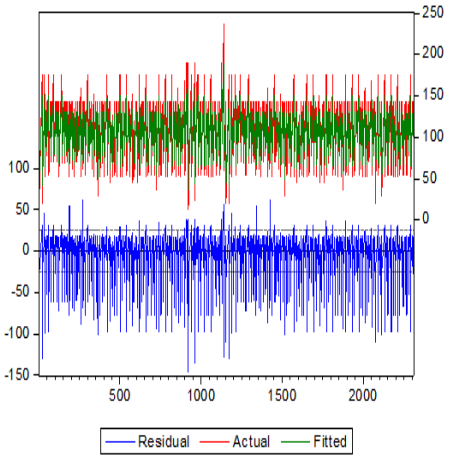

Figure (17)
The graph of the first differences values of the close stock price of Suez Canal Bank,

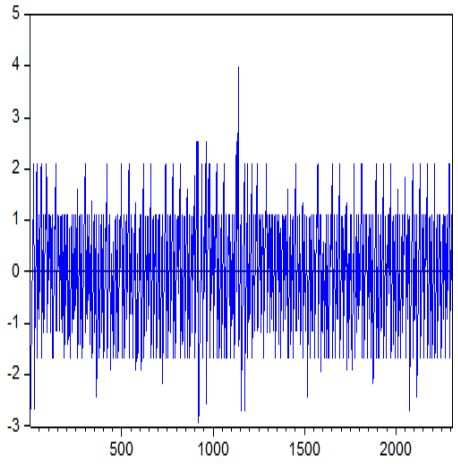

Figure (18)
The actual, estimated and residuals of the estimated time series of the first differences values of the close stock price of Suez Canal Bank using ARMA (1,1)

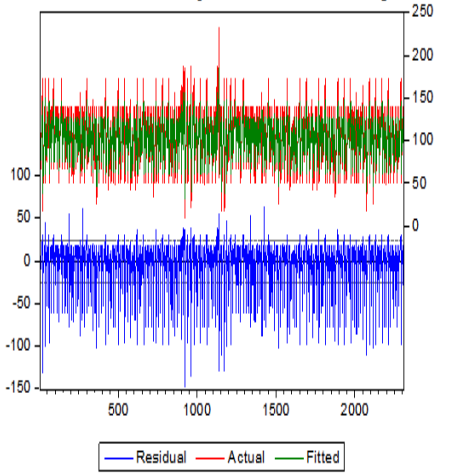

Figure (19)
The graph of the first differences values of the close stock price of
Union National Bank - Egypt "UNB-E".

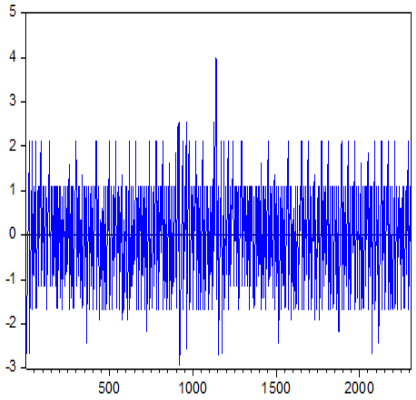

Figure (20)
The actual, estimated and residuals of the estimated time series of the first differences values of the close stock price of Union National Bank - Egypt "UNB-E" using ARMA (1,1)

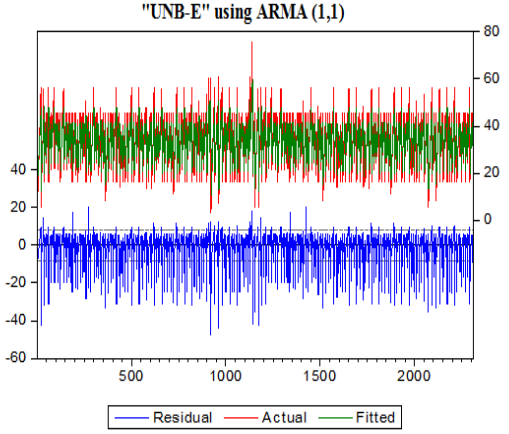

Figure (21)
The graph of the first differences values of the close the close level of the market index EGX(100)

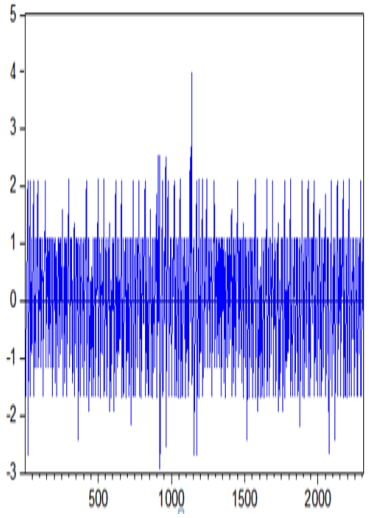

Figure (22)
The actual, estimated and residuals of the estimated time series of the first differences values of the close level of the market index EGX(100) using ARMA(1,1)

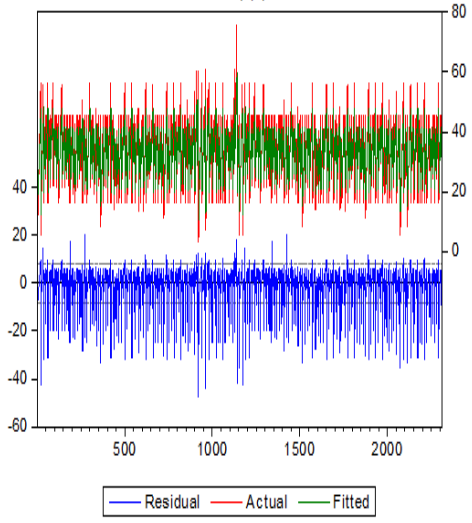

Figure (23)
Treynor