Egyptian Fund managers' abilities: Evidence on market timing and Selectivity pre and post January 25th revolution.

Dr. Dalia El Mosallamy
Lecturer of Finance[٧]
The British University in Egypt
e-mail: dalia.elmosalamy@bue.edu.eg

Abstract

Following the January 2011 revolution, Egypt has undergone through political and economical transition including lots of protests, riots, strikes, and others which had their impact on employment, income and investment decisions either in real assets or in financial assets. In this paper, the weekly returns of a sample of open ended funds representing all the Egyptian conventional funds, denominated in local currency in existence from January 2008 to January 2014, are used to examine the market timing and security selection abilities of Egyptian fund managers. The main fundamental question this study attempts to answer is; do mutual funds in Egypt possess market timing and/or security selection abilities, what about their performance during times of economic or political instability? Three models are employed: Treynor and Mazuy (1966) model, Henrikson Merton (1981) model and Henrikson Merton model with an autoregressive term to control for the auto correlation of returns. The sample period is divided into two periods from January 8th, 2008 to January 6th, 2011 (pre-revolution) and from January 13th, 2011 to January 9th, 2014 (post revolution). The study documents evidence of security selection abilities for Egyptian Funds only in the overall and the post revolution period, but no market timing abilities neither in the pre, post nor the entire sample period. The main implication is that Egyptian mutual funds could be an attractive investment vehicle, especially in periods of shocks and economic downturns. None of the fund managers in the Egyptian market were able to successfully time the market in the right direction but some funds were successful in reaping returns in excess of the market based on their selection abilities.

Egyptian Fund managers' abilities: Evidence on market timing and Selectivity pre and post January 25th revolution.

1. Introduction

Following the January 2011 revolution, Egypt has undergone through political and economical transition including lots of protests, riots, strikes, and others. With two interim governments and uncertainty regarding the future orientation of the country itself, all had their impact on employment, income and investment decisions in general and on the Egyptian financial market in specific.

Mutual funds were always argued to be a vehicle of choice for many investors, offering the benefits of diversification, liquidity and professional management. Investors are always faced with the decision of whether to follow an active or a passive strategy in managing their portfolios especially in emerging markets with the possibility of exploiting the mispricing opportunities which may exist therein. Regardless of which view fund managers have, the level of availability of information in the particular market is a major determinant of its efficiency level and outperforming the market remains the goal of every active fund manager.

This paper attempts to investigate a main question, can fund managers in Egypt actually beat the market and if so, how about during times of economic or political instability? In doing so, the performance of a sample of 21 open ended, Egyptian mutual funds in existence from January 2008 to January 2014 are examined, to investigate if any of the fund managers were able to beat the market and enhance the performance of their portfolios by implementing security selection and /or market timing strategies. The tests are performed in two stages; first, using the entire sample period, mutual fund managers abilities will be examined to see if managers do posses timing and/ or selection abilities. Then, the sample period is divided into two periods; the pre-revolution period (from January 3rd, 2008 to January 6th, 2011) and the post revolution (from January 13th, 2011 f to January 9th, 2014) to examine if those abilities differed as a result of the political and economic turmoil. In the Egyptian

market, mutual funds' managers do not report daily data in a form that is accessible to researchers and analysts, this is why weekly price data for the index selected (EGX 30) and the mutual funds sampled are used. After deriving the weekly holding period returns data, three models are utilized in order to test for market timing and security selection abilities; the Treynor and Mazuy(1966) model (hereafter TM model) the Henrikson and Merton (1981) model (hereafter HM model) and Henrikson Merton(1981) model with an autoregressive term to control for the auto correlation of returns (hereafter HM with AR term).

As the empirical literature has not yet fully exploited the timing models methodologies in the immature, emerging Arab markets, this study is particularly important to provide insights on the timing and security selection abilities of Egyptian funds in an important economic and political condition period. This study will not only help local investors understand the performance of the Egyptian mutual funds but also can help foreign fund managers and investors to understand the performance of the existing Egyptian mutual funds' industry in a market that was considered one of the fastest growing, emerging, Arab markets that is faced currently by political and economic disturbances collectively hindering the reach to its expected growth.

The rest of the paper is organized as follows: section two presents an overview of the Egyptian market. Section three surveys the literature by presenting a review of previous studies. Section four shows the methodology used. Section five summarizes the data used. Section six presents the empirical results and discussion. Finally, section seven presents the conclusion and areas for possible future research.

2. An overview of the Egyptian Market

The revitalization of the Egyptian stock market in the 1990s took place within a process of deregulation and privatization of the economy. The new capital market law was a main element in this process that defined the regulatory framework for financial intermediaries, established the Egyptian Financial Supervisory Authority as an independent regulatory agency for securities industry, and strengthened investor rights and financial disclosure requirements. These reforms set a stage for

significant market expansion in which new equity issues, volume and value of trading, and the number of trading companies all recorded significant progress. As a result of those efforts, among others Egypt was ranked in 2009 as the first in North Africa and second best destination for foreign direct investment (FDI) in the African continent for the FY 2009/10, after South Africa, according to the *African Countries of the future 2009-2010* report by FDI Intelligence (Ministry of Investment, 2009).

Mutual funds in Egypt are considered a mean of investment by small investors who do not have either the money needed to form a large portfolio or the experience of investing in the stock exchange or even the sufficient time to follow-up their investments on a continuous basis. The public interest in the Egyptian mutual fund industry has grown rapidly in recent years. With a process of privatization and stock market liberalization, Egypt as many other Arab countries, has the goal of deepening the markets and improving corporate governance. Egypt is considered currently one of the biggest and most active markets in the region. However issues related to financial transparency and political instability are still powerful obstacles to investments in Egypt (Stefea, *et al.,* 2013).

It has been demonstrated that a country's economic situation deteriorates in periods of political transitions. In the case of Indonesia, when its president was forced to resign after 30 years in office in 1998, it took Indonesia 10 years to recover its 6% economic growth rate which had been the average growth rate for almost the 30 years of its former president's rule (World Bank, 2011). According to the World Bank, in cases of political transitions, the economic growth rate may be expected to decline by a minimum of 3 percentage points and to recover within a year or two only in successful democratized countries.

From the onset of Egypt's political transformations (January 25th, 2011) the monetary policy pursued by the Central Bank focused on the necessity to stem the fall of the pound's exchange rate. The changes which accompanied the revolution have led to a sharp decline in economic activity as real growth of the Egyptian economy dropped from 5.1 percent in the fiscal

year 2009-2010 to 1.8 percent in fiscal 2010-2011 along with the consistent rise in the treasury bills rate to reach a high of 13 per cent at the end of 2012 (Central Bank annual report, 2011). According to the Central Bank annual report in 2011, the Egyptian Stock Market experienced a stressed period prior and post the Egyptian revolution. The market was fluctuating up and down and the impact was obvious on all the Egyptian market indices for example: from the beginning of 2011 till January 24th, the EGX30 declined by 6 percent. Similarly, EGX70 and EGX100 declined by 2 percent and 3 percent respectively. In the 25th of January after the uprising of the Egyptian revolution EGX again declined by 16 percent, and even on 26th and 27th sessions the Egyptian stock market experienced a great fall. In only two days The EGX70 and EGX100 plummeted by 24% and 22% respectively. As a result, the Stock Exchange closed for almost eight weeks from 27th January till 23th of March 2011. But unfortunately, the market fell even further by 8.9% on reopening and fluctuations since then continued with every major political event, protest or any other form of unrest.

3. Literature review

The origin of the portfolio theory by Markowitz (1959) is deeply rooted in the concepts of probability, risk and utility. Before Markowitz portfolio theory, investors evaluated portfolio performance almost entirely on the basis of the rate of return. They were aware of the concept of risk but did not know how to quantify or measure it. With the development of the capital asset pricing model by Sharpe (1964) and in the extensive literature on capital markets, it became clear that the capital asset pricing model can provide a benchmark for performance analysis. However this theory is based on specific constraints and requirements that do not necessarily correspond to reality, one of these constraints is the presence of a perfect efficient market.

Dimson and Mussavian (2000) assert that the concept of market efficiency was anticipated at the beginning of last century in Bachelier's (1900) PhD dissertation to the Sorbonne. Fama (1970) views efficiency as a term used to describe a market in which relevant information is impounded into the price of financial assets. Fama then suggested that securities prices tend

to follow a "*Sub martingale*". That is, instead of the restrictive assumption of the random walk theory, in which securities' prices and returns are serially independent and identically distributed, prices are assumed to follow a "Random Walk with a Drift" so that, in the long run, securities returns tend to move upward, indicating a positive long-term return. Therefore no trading rule can outperform a "Buy-and-Hold" strategy. With the late sixties and seventies, many researchers devoted their efforts towards the challenge of measuring portfolio performance using the CAPM. Of the very first models used to evaluate risk adjusted performance was the one promoted by Treynor (1965) who focused on measuring the return per unit of systematic risk. Then, Sharpe (1966) introduced his measure of the risk premium return earned per unit of total risk. Jensen (1968) calculated the differential return as the difference between the realized rate of return and the required rate of return in which the intercept of the model is usually interpreted as a measure of over- or under- performance relative to the market proxy being used.

Later, numerous studies tended to examine mangers' abilities and to provide evidence on successful active approach to portfolio management. Grinblatt, Titman and Wermers (1995) documented momentum strategies and provided evidence on fund managers buying past winners. Daniel (1998) provided an evidence of the inability of fund managers to beat the market despite their active management. Fiotakis (2004) presented evidence that mutual fund investors are active trend chasers, but their decisions are not sophisticated and short lived, as they will go for the funds that perform well on a relative basis.

It is argued that for active portfolio management to be successful, fund managers should to try to exploit market inefficiencies in order to outperform the market, including an in depth security analysis to find stocks that will likely outperform the index (Security selection) and downside risk protection by allocating more funds to more conservative investments at times of higher instability (market timing analysis).

Market timing or macro forecasting is defined by Fama (1972) as the manager's ability to forecast future price movements of the stock market in general. It concerns the decision of the

appropriate allocation of funds between a surrogate market portfolio which could be a combination of stocks and long-term bonds and a risk free asset such as the treasury bills. It is usually assumed that a manager receives information signals and acts on the basis of that information to achieve improved performance in the best interests of the fund's shareholders. The use of market timing strategies has long been the subject of much discussion. Several researchers question the usefulness of such techniques, arguing that such techniques usually cannot produce better returns than a buy-and-hold strategy.

Fabozzi and Francis (1979) used the monthly returns for U.S. mutual funds and presented evidence that mutual fund managers did not shift their fund's beta to take advantage of market movements, and that they were unable to foresee changes in market conditions and even if they were able to anticipate market movement, the cost of changing the target beta of the fund may not be justified. Henrikson (1984) , Nesbitt (1995), Grinblatt and Titman and Wermers (1995) and Daniel (1998) all provided similar evidence that mutual fund managers were unable to follow an investment strategy that successfully times the market. On the other hand, Bello and Janjigan (1997) examining 633 U.S. equity funds returns and portfolio composition during the 1984 to 1994 period, and using an extended version of the TM model that controls for the inclusion of non S&P assets in mutual fund portfolios, documented positive and significant market timing abilities. Xu (2005) examined the market timing ability of China's securities investment funds (SIFs), in comparison with the performance of the SIFs in the United States, and documented superior market timing performance for China investment funds. Cuthbertson *et al.* (2010) using monthly returns of UK equity and balanced mutual funds, tested the market timing skills using unconditional and conditional TM and HM models and reported between two per cent and five per cent of funds possess statistically significant positive timing skill using the unconditional timing models.

In fact, the debate on mangers' abilities is still inconclusive and it becomes even more controversial when emerging markets are considered. Nassir *et al.* (1997) studied the Malaysian unit trusts

using monthly returns and employing the TM model, provided evidence that fund managers do not possess market timing ability. Alternatively, Deb *et al.* (2007) assessed market timing and security selection of Indian mutual funds applying both unconditional models of TM and HM models in addition to the conditional model of Ferson and Schadt (1996) and documented a strong evidence of lack of market timing abilities and weak evidence of positive stock selection. In 2014, a study conducted by Musah *et al.* (2014) in Ghana and using funds' monthly returns from 2007 to 2012, suggested that mutual fund managers in Ghana are generally unable to effectively select stocks and are not able to predict both the magnitude and direction of future market returns.

The effects of political instability on the stock market performance in general and managers' abilities in specific had their share of arguments. Studies tried to test the causes of stock markets' jumps or falls following political turmoil. Alesina and Perotti (1996) found a negative relationship between political instability and investments. Chan (2001) tested the impact of salient political and economic news on the stock return volatility, the price volatility and the daily volume in the Hong Kong stock market and provided evidence that salient political news has a negative effect while salient economic news has a positive effect on the stock market. Hung *et al.* (2007) tested the jump intensity and volatility in both Taiwan stock and foreign exchange markets during presidential elections and indicated that during the presidential elections the jump intensity and the volatility of both markets increase. With respect to portfolio management, Teresience and Paskevicus (2009) studied the U.S. stock market after the 2008 crisis and argue that in the time of crisis and the bursting of financial bubbles the approach of portfolio managers changes from focusing on how to attract investors through higher returns at a given risk to how to maintain investors, and that , during periods of economic and political instability, minor events may alter investors' expectations hence bring down the value of the constituents of portfolios, and the portfolio as a whole. In attempting to provide evidence on managers' abilities, Kaushik and Pennathur (2012) provided results of significant outperformance for US mutual

fund managers, but after accounting for the down market of the 2008 financial crisis there was no evidence of over performance, concluding with the absence of security selection and market timing abilities. Similar results were provided by Amporn and Yosawee (2011) in Thailand and Samira and Slaheddine (2011) in Tunis. Chau *et al.*(2014) tackled the aftermath of the Arab Spring on the volatility of stock markets in the countries facing turmoil between 2011 and late 2013. They claim that after the uprising in the region, the individual markets became less integrated with international markets to the increased perception of country risk in set countries and this almost created a wide consensus on the general direction these markets are anticipated to follow.

To conclude, many studies employing different models have been cited in literature trying to measure how and if fund managers possess market timing and/ or security selection abilities. Some studies were also trying to compare these abilities before, during and after financial and political turmoil. However, the findings remain mixed, inconclusive and very scare especially when it comes to emerging, Arab markets despite their potential. This study attempts to add to literature by attempting to answer this main question; with respect to the Egyptian market, do mutual fund managers possess market timing and/or security selection abilities? Did their abilities differ during times of economic or political instability?

4. Methodology and Data

Several methods have been suggested in literature to test market timing and stock selection abilities of fund managers. Two of the most prominent models are Treynor and Mazuy model (1966) and Henrikson Merton (1981) model. Later studies have mainly used modified versions of these two models. In the unconditional models employed, weekly net asset values of all Egyptian funds denominated in Egyptian pounds (21 funds) are used from January 2008 to January 2014. The risk free rate is taken to be the three-month Treasury bill rate existed in the Egyptian market during the period of study, announced on weekly basis and collected from the National bank of Egypt.

4.1 Quadratic Regression Model (Treynor and Mazuy Model)

According to Treynor and Mazuy (1966), when a market-timing manager forecasts the equity market is going to rise in the near future, he will switch his investment from less volatile securities to more volatile ones and is expected to switch the fund's holdings in the reverse direction when he is expected the market to fall. This timing activity will result in an observable convex relation between the fund return and the market return ex post, which is captured by the squared term in the model.
The regression model is...

$$(R_P - R_F)_t = \alpha_P + \beta_P(R_M - R_F)_t + c_P^{TM}(R_M - R_F)_t^2 + \varepsilon_{Pt}$$

...[1]
Where:

R_P Return on fund p

R_F Risk-free rate (a compensation for systematic risk that cannot be diversified)

R_M Market rate of return used as the benchmark

α_P Alpha (a measure of selectivity)

β_P Beta (the systematic risk of the fund)

C_P^{TM} Market timing coefficient

ε_P Random error term

In the above regression, a positive significant value for α will indicate selectivity capabilities. The C_P^{TM} coefficient will measure timing capabilities: a positive significant value will indicate that timing activities have added value to portfolio performance. If the fund manager is unable to time the market correctly, or is not attempting to time the market and is concentrating only on stock selection, then the timing coefficient should not be significantly different from zero. The average beta of the portfolio over time should remain fairly constant, and the plots of the fund's excess returns versus that of the market's excess returns over the risk free rate would be a straight line. In addition, if the fund manager attempts to time the market and changes the beta, but is unsuccessful in doing so, again the above plot would still show a linear pattern but maybe with only

additional scatter. However, if the manager successfully changes the beta in response to dynamic market conditions and was successful in assessing the direction of the market, a higher beta during up market and a lower beta during the down market could be expected. The plots of the fund's excess returns against the market excess return would then lie above the linear relationship in the up market and below the linear relationship in the down market, which would justify the curvature to the scatter of the points, and the quadratic term added to the linear model captures this curvature.

For the Egyptian Market, the risk free rate for the model is the interest rate on 3 months T-Bills. The timing ability is tested by creating a regression model between the return on the fund less the risk free rate (dependent variable) denoted by $(R_P - R_F)$ and the market premium denoted by $(R_M - R_F)$ and $(R_M - R_F)^2$.

4.2 Dummy Variable Regression (Henrikson Merton Model)

According to the HM (1981), the 'up markets' are those periods in which risky securities outperform the risk free assets while the 'down markets" are the periods when they do not perform as well. A successful market timer would select a high up market beta, and a low down market beta. The logic of this model is based on the assumption that the fund has two target betas when managers are engaged in timing activities. Managers are switching between a high beta in anticipation of a bull market (i.e. market excess return > 0), and a low beta in anticipation of a bear market (i.e. market excess return < 0). C, the coefficient of market timing, captures the difference between the two betas. Such a relationship can be estimated using the standard regression methods to determine the parameters α, β and C in the dummy variable regression equation as follows:

$$(R_P - R_F)_t = \alpha + \beta(R_M - R_F)_t + C^{HM}(R_M - R_F)_t D_t + \varepsilon_{Pt}$$

...[2]

Where D_t (a dummy variable) is the max $(0,(R_M - R_F)_t)$ that equals 1 for $(R_M \rangle R_F)$ and zero otherwise. Hence the beta of the portfolio is β in bear markets and $\beta + C$ in bull markets. A positive significant value of C implies market timing ability.

4.3 HM Model with an AR term

If one of the funds showed high price at one time, it is not unusual to find prices taken in adjacent observations also to be high. Xu (2005) suggested the use of the HM (1981) model for testing market timing in Chinese funds but with an added auto regressive term (AR) term to control for the autocorrelation of returns. This model is specified as follows;

$$R_{Pt} = \alpha + \theta R_{Pt-1} + \beta(R_M - R_F)_t + C^{HM}(R_M - R_F)_t * D_t + \varepsilon_{Pt}$$

... [3]

Where;

R_{Pt}= the fund excess return at time t.

R_{Pt-1}= the fund excess return at time t-1.

θ = Auto regression term to control for the autocorrelation of fund's excess returns.

The analysis is based on weekly data; thus, weekly returns of the main Egyptian market index (EGX30) are used for the period starting Jan 2008 until January 2014. The mutual funds database covers the net asset values of 21 open-ended funds, dominated in local currency, classified as follows: (3 open ended balanced funds, 14 equity funds, 2 asset allocator funds, 1 income mixed funds and 1 capital guaranteed funds). Global funds are excluded as they are subjected to a different array of risks beyond the scope of this paper. Islamic funds were also excluded, as they are Shariah compliant that is, according to the Islamic rules, prohibited to invest in any fixed interest-bearing instrument including Treasury bills. The risk free rate is taken to be the three-month Treasury bill rate existed in the Egyptian market during the period of study (the names of all sampled funds are listed in table 1). The market proxy is chosen to be the main local EGX30 index. This data set is not subjected to survivorship bias, since no open-ended mutual fund dropped out of sample. Weekly net asset values for the Egyptian funds and index were all obtained from the National Bank of Egypt. The analysis is performed on two stages; first market timing and security selection abilities are tested through the entire sample period from January 2008 to January 2014, and then the sample period is divided to pre revolution (from January 3rd, 2008 to January 6th, 2011) and post revolution periods (from January 13th, 2011 to January 9th, 2014) to examine if there are

differences in the fund managers' strategies throughout the different market and political conditions. Aggregate performance of all funds sampled is examined throughout the entire sample period, the pre-revolution and the post revolution periods to test if the aggregate portfolio of funds shows any evidence of market timing or selectivity throughout any of the periods tested on an aggregate level. Then, a cross sectional analysis of performance is later performed in which funds are grouped by class into balanced funds, equity funds, asset allocator funds, income mixed funds and capital guaranteed funds to examine the difference in performance if any in terms of selectivity or market timing abilities in the three periods tested.

Table 1: Sample selection

Equity open ended funds	14
Balanced open ended funds	3
Asset Allocator funds	2
Income mixed funds	1
Capital guaranteed funds	1
Total Sampled mutual funds	21

5. Empirical Results and Discussion

The empirical analysis of this work conducts by investigating a sample of 21 diversified Egyptian mutual funds for the period between 2008 and 2014. This study covers a critical period in the Egyptian stock market, starting with a period of political stability followed by a series of uprisings, interim governments and protests. Thus it seemed proper to consider the overall period first, then to divide the overall period into two sub-periods: the former is termed as 'the Pre-revolution period' and covers three years starting Jan. 2008 to Jan. 2011 and the latter as 'the Post- revolution period' covering the following three years ending in Jan. 2014. The funds are first grouped into an aggregate portfolio including all funds sampled. Then funds are grouped into classes according to fund objective. This yielded 1aggregate fund portfolio comprising all funds sampled and 5 fund portfolios grouped according class (open equity fund

portfolio, open end balanced portfolio, asset allocator fund portfolio, income mixed fund portfolio and capital guaranteed fund portfolio). Applying the TM model to the Egyptian mutual funds portfolios for the entire sample period (from January 2008 to January 2014) and for the two sub periods along with descriptive statistics yielded the results summarized in Table 2.

Table 2 shows the regression results following the basic Treynor and Mazuy (1966) model, which separates the performance of fund managers into three components in which superior market timing ability, shows up in positive significant C_{TM}. While α_i and β_i, are coefficients indicating stock selection and systematic risk of funds. Regressing the excess returns of Egyptian mutual funds with market premium $(R_M - R_F)$ and the square of it $(R_M - R_F)^2$ as predictors, the following results were revealed; all funds were defensive, with significant beta values less than one, the coefficient of determination values ranged between 0.5 and 0.9 and the F-test was significant at 0.01 for all the funds, from which we can conclude that the model as a whole is statistically significant in explaining the variation in the values of the funds portfolios' excess returns.

Table 2: The regression results of estimating market timing ability of fund managers using Treynor and Mazuy (1966) model, where significant values for alpha, beta and CTM indicate outperformance, systematic risk and market timing ability using the TM model respectively. ** Significant at 5% level of significance, * Significant at 10% level of significance.

TM Model Values			
Sample no. of funds	Overall Period	Pre-revolution period	Post-revolution period
EGX30 main local index	Mean 0.0011 SD 0.0578 No. of observations 309	Mean 0. 002 SD 0.0671 No. of observations 153	Mean 0.003 SD 0.0516 No. of observations 156
Aggregate Fund Portfolio 21	Mean 0.0016 SD 0.06 α 0.003 p-value 0.18 β 0.77** p-value 0.00 C_{TM} -0.79** p-value 0.01 R^2 0.61 No. of observations 309	Mean 0.004 SD 0.084 α 0.004 p-value 0.45 β 0.86** p-value 0.00 C_{TM} -0.58 p-value 0.33 R^2 0.54 No. of observations 153	Mean 0.00 SD 0.038 α 0.001 p-value 0.21 β 0.69** p-value 0.00 C_{TM} -0.67** p-value 0.00 R^2 0.89 No. of observations 156
Equity Fund portfolio 14	Mean 0.002 SD 0.074 α 0.004 p-value 0.32 β 0.85** p-value 0.00 C_{TM} -0.65** p-value 0.00 R^2 0.59	Mean 0.006 SD 0.107 α 0.006 p-value 0.52 β 0.95 p-value 0.00 C_{TM} -0.37 p-value 0.67 R^2 0.39	Mean -0.004 SD 0.04 α 0.001* p-value 0.09 β 0.76** p-value 0.00 C_{TM} -0.74** p-value 0.00

	No. of observations 309	No. of observations 153	R^2 0.92 No. of observations 156
Balanced Fund Portfolio 3	Mean 0.0003 SD 0.045 α 0.003** p-value 0.03 β 0.642** p-value 0.00 C_{TM} -0.99** p-value 0.00 R^2 0.81 No. of observations 309	Mean -0.0006 SD 0.056 α 0.002 p-value 0.36 β 0.71** p-value 0.00 C_{TM} -0.94** p-value 0.00 R^2 0.86 No. of observations 153	Mean 0.0007 SD 0.034 α 0.002** p-value 0.04 β 0.57** p-value 0.00 C_{TM} -0.38 p-value 0.22 R^2 0.74 No. of observations 156
Asset Allocator 2	Mean 0.0005 SD 0.05 α 0.002** p-value 0.04 β 0.781** p-value 0.00 C_{TM} -0.76** p-value 0.00 R^2 0.901 No. of observations 309	Mean 0.0001 SD 0.06 α 0.0015 p-value 0.41 β 0.80** p-value 0.00 C_{TM} -0.68** p-value 0.001 R^2 0.92 No. of observations 153	Mean 0.0003 SD 0.042 α 0.002* p-value 0.08 β 0.77** p-value 0.00 C_{TM} -0.85** p-value 0.00 R^2 0.82 No. of observations 156
Income Mixed Fund 1	Mean 0.0000 SD 0.04 α 0.005** p-value 0.03 β 0.39** p-value 0.00 C_{TM} -1.52** p-value 0.00 R^2 0.50 No. of observations 309	Mean -0.002 SD 0.054 α 0.004 p-value 0.30 β 0.511 p-value 0.00 C_{TM} -1.411 p-value 0.00 R^2 0.68 No. of observations 153	Mean 0.001 SD 0.034 α 0.003** p-value 0.05 β 0.26** p-value 0.00 C_{TM} -0.46 p-value 0.39 R^2 0.29 No. of observations 156
Capital Guaranteed Fund 1	Mean 0.0001 SD 0.041 α -0.004** p-value 0.01 β 0.46** p-value 0.00 C_{TM} -1.4** p-value 0.00 R^2 0.61 No. of observations 309	Mean -0.002 SD 0.055 α 0.003 p-value 0.40 β 0.568 p-value 0.00 C_{TM} -1.31 p-value 0.00 R^2 0.74 No. of observations 153	Mean 0.0015 SD 0.029 α 0.002 p-value 0.17 β 0.36** p-value 0.00 C_{TM} -0.56 p-value 0.15 R^2 0.399 No. of observations 156

With respect to the overall period sampled, none of the fund portfolios showed any evidence of market timing abilities. In fact all funds had negative significant market timing coefficients (C_{TM}), indicating that these funds were attempting to time the market by switching their holdings between stocks and treasury bills but they were unsuccessful in doing so. In fact those attempts to anticipate the direction of the market eroded their weekly returns, specifically for the Income Mixed Fund and the Capital Guaranteed Fund portfolios which scored the highest negative significant market timing coefficients. As for selectivity, three fund portfolios scored positive significant values for alpha (the selectivity coefficient). This result may provide evidence that Egyptian mutual funds may possess some security selection abilities, which may have enhanced the

weekly returns of the funds' portfolios in the range of 0.5% to 0.2% significant at 10 % level of significance. It is worth mentioning that the Income Mixed Fund portfolio that scored the highest positive significant value for selectivity is the same fund that had the lowest significant market timing coefficient, implying that this fund portfolio was able to enhance its weekly returns by successful security selection, however the results were reduced with its unsuccessful attempts to time the market. As for the pre-revolution and post-revolution periods, the former results were confirmed. None of the fund portfolios have significant market timing abilities. Significant market timing abilities were absent for all fund portfolios in the pre-revolution period but appeared in the post revolution period in 4 fund portfolios.

Table 3 shows the regression results using the HM model by regressing excess returns of Egyptian funds' portfolios with market premium $(R_M - R_F)$ and the dummy variable code referred to, as predictors, the following results were obtained; looking to the overall sample period and to the two sub-periods (the pre-revolution and post revolution periods) none of the funds' portfolios scored positive significant market timing abilities which confirms the results presented earlier by applying TM model in which Egyptian fund managers lack the market timing abilities. Looking at the overall sample period, and the two sub-periods, the six funds' portfolios scored negative significant market timing coefficient (C_{HM}). Security selection abilities yielded positive significant values for alpha in 4 funds' portfolios, which appear to result only from the funds' efforts to successfully choose securities mainly in the post revolution period since alpha values for all funds' portfolios were insignificant in the post revolution period.

When using the HM model, the F-test was significant at 0.01 for all the funds and the values for the coefficient of determination R^2 and adjusted R were also as high as those of the TM model indicating that both model are almost equally capable in explaining a high percentage of the changes in the funds' excess returns (ranging from 50% to 90% of the variation in the excess returns).

Table 3: The regression results of estimating market timing ability of fund managers using Henrikson Merton model, where significant values for alpha, beta and C_{HM} indicate outperformance, systematic risk and market timing ability using the HM model respectively. ** Significant at 5% level of significance, * Significant at 10% level of significance.

HM Model Values			
Sample no. of funds	Overall Period	Pre-revolution period	Post-revolution period
EGX30 main local index	Mean 0.0011 SD 0.0578 No. of observations 309	Mean 0. 002 SD 0.0671 No. of observations 153	Mean 0.003 SD 0.0516 No. of observations 156
Aggregate Fund Portfolio 21	Mean 0.0016 SD 0.06 α 0.005 p-value 0.16 β 0.89** p-value 0.00 C_{HM} -0.19* p-value 0.09 R^2 0.61 No. of observations 309	Mean 0.004 SD 0.084 α 0.005 p-value 0.51 β 0.96** p-value 0.00 C_{HM} -0.14 p-value 0.56 R^2 0.53 No. of observations 153	Mean 0.00 SD 0.038 α 0.003* p-value 0.08 β 0.77** p-value 0.00 C_{HM} -0.15** p-value 0.01 R^2 0.88 No. of observations 156
Equity Fund portfolio 14	Mean 0.002 SD 0.074 α 0.004 p-value 0.33 β 0.94** p-value 0.00 C_{HM} -0.148 p-value 0.37 R^2 0.47 No. of observations 309	Mean 0.006 SD 0.107 α 0.005 p-value 0.64 β 1.00 p-value 0.00 C_{HM} -0.05 p-value 0.87 R^2 0.49 No. of observations 153	Mean -0.004 SD 0.04 α 0.002* p-value 0.07 β 0.84** p-value 0.00 C_{HM} -0.17** p-value 0.03 R^2 0.91 No. of observations 156
Balanced Fund Portfolio 3	Mean 0.0003 SD 0.045 α 0.005** p-value 0.01 β 0.80** p-value 0.00 C_{HM} -0.26** p-value 0.00 R^2 0.79 No. of observations 309	Mean -0.0006 SD 0.056 α 0.004 p-value 0.15 β 0.89** p-value 0.00 C_{HM} -0.29** p-value 0.02 R^2 0.85 No. of observations 153	Mean 0.0007 SD 0.034 α 0.002 p-value 0.30 β 0.62** p-value 0.00 C_{HM} -0.08 p-value 0.30 R^2 0.74 No. of observations 156
Asset Allocator 2	Mean 0.0005 SD 0.05 α 0.004** p-value 0.00 β 0.92** p-value 0.00 C_{HM} -0.24** p-value 0.00 R^2 0.89 No. of observations 309	Mean 0.0001 SD 0.06 α 0.003 p-value 0.159 β 0.93** p-value 0.00 C_{HM} -0.22** p-value 0.002 R^2 0.90 No. of observations 153	Mean 0.0003 SD 0.042 α 0.004** p-value 0.02 β 0.87** p-value 0.00 C_{HM} -0.21** p-value 0.00 R^2 0.88 No. of observations 156
Income Mixed Fund 1	Mean 0.0000 SD 0.04 α 0.007** p-value 0.01 β 0.62** p-value 0.00 C_{HM} -0.38** p-value 0.00 R^2 0.46 No. of observations 309	Mean -0.002 SD 0.054 α 0.007 p-value 0.11 β 0.80 p-value 0.00 C_{HM} -0.45** p-value 0.00 R^2 0.65 No. of observations 153	Mean 0.001 SD 0.034 α 0.002** p-value 0.05 β 0.30** p-value 0.00 C_{HM} -0.08 p-value 0.58 R^2 0.47 No. of observations 156
Capital Guaranteed Fund 1	Mean 0.0001 SD 0.041 α 0.007** p-value 0.00 β 0.69** p-value 0.00 C_{HM} -0.37** p-value 0.00 R^2 0.58 No. of observations 309	Mean -0.002 SD 0.055 α 0.006 p-value 0.15 β 0.83 p-value 0.00 C_{HM} -0.41** p-value 0.00 R^2 0.72 No. of observations 153	Mean 0.0015 SD 0.029 α 0.004 p-value 0.15 β 0.42** p-value 0.00 C_{HM} -0.14 p-value 0.21 R^2 0.497 No. of observations 156

Finally table 4 shows the regression results when applying the HM model with an autoregressive term to control for the auto correlation of returns. Once again there was an absence of significant market timing abilities for all funds' portfolios, in the three periods examined. There was some evidence of positive significant values for the selectivity coefficient in 4 funds' portfolios when considering the overall sample period which seemed to be derived mainly from the selectivity efforts exerted in the post revolution period.

Table 4: The regression results of estimating market timing ability of fund managers using Henriksson Merton model with AR term, where significant values for alpha, beta, C_{HM} and θ indicate outperformance, systematic risk, market timing ability and the auto regression term to control for the autocorrelation of returns using the HM AR model respectively. ** Significant at 5% level of significance, * Significant at 10% level of significance.

HM/AR Model Values			
Sample no. of funds	Overall Period	Pre-revolution period	Post-revolution period
EGX30 main local index	Mean 0.0011 SD 0.0578 No. of observations 309	Mean 0. 002 SD 0.0671 No. of observations 153	Mean 0.003 SD 0.0516 No. of observations 156
Aggregate Fund Portfolio 21	Mean 0.0016 SD 0.06 α 0.005 p-value 0.16 β 0.89** p-value 0.00 C_{HM} -0.19* p-value 0.09 Θ 0.02 p-value 0.77 R^2 0.61 No. of observations 309	Mean 0.004 SD 0.084 α 0.005 p-value 0.52 β 0.96** p-value 0.00 C_{HM} -0.14 p-value 0.57 Θ 0.015 p-value 0.87 R^2 0.53 No. of observations 153	Mean 0.00 SD 0.038 α 0.003* p-value 0.08 β 0.77** p-value 0.00 C_{HM} -0.15** p-value 0.01 Θ 0.06 p- value 0.15 R^2 0.89 No. of observations 156
Equity Fund portfolio 14	Mean 0.002 SD 0.074 α 0.004 p-value 0.37 β 0.94** p-value 0.00 C_{HM} -0.148 p-value 0.37 Θ 0.014 p-value 0.80 R^2 0.48 No. of observations 309	Mean 0.006 SD 0.107 α 0.005 p-value 0.65 β 1.00 p-value 0.00 C_{HM} -0.05 p-value 0.87 Θ 0.01 p-value 0.89 R^2 0.39 No. of observations 153	Mean -0.004 SD 0.04 α 0.002* p-value 0.07 β 0.84** p-value 0.00 C_{HM} -0.17** p-value 0.00 Θ 0.048 p-value 0.14 R^2 0.91 No. of observations 156
Balanced Fund Portfolio 3	Mean 0.0003 SD 0.045 α 0.005** p-value 0.01 β 0.80** p-value 0.00 C_{HM} -0.26** p-value 0.00 Θ 0.08 p-value 0.20 R^2 0.79 No. of observations 309	Mean -0.0006 SD 0.056 α 0.004 p-value 0.15 β 0.91** p-value 0.00 C_{HM} -0.30** p-value 0.00 Θ 0.16 p-value 0.17 R^2 0.85 No. of observations 153	Mean 0.0007 SD 0.034 α 0.002* p-value 0.33 β 0.61** p-value 0.00 C_{HM} -0.08 p-value 0.30 Θ 0.12 p-value 0.11 R^2 0.74 No. of observations 156
Asset Allocator 2	Mean 0.0005 SD 0.05 α 0.005** p-value 0.00 β 0.92** p-value 0.00 C_{HM} -0.24** p-value 0.00 Θ -0.029 p-value 0.38 R^2 0.90 No. of observations 309	Mean 0.0001 SD 0.06 α 0.003 p-value 0.17 β 0.94** p-value 0.00 C_{HM} -0.22** p-value 0.00 Θ 0.025 p-value 0.72 R^2 0.90 No. of observations 153	Mean 0.0003 SD 0.042 α 0.004** p-value 0.02 β 0.87** p-value 0.00 C_{HM} -0.21** p-value 0.00 Θ -0.04 p-value 0.23 R^2 0.88 No. of observations 156
Income Mixed Fund	Mean 0.0000	Mean -0.002	Mean 0.001

1	SD 0.04 α 0.008** p-value 0.00 β 0.63** p-value 0.00 C_{HM} -0.40** p-value 0.00 Θ -0.5** p-value 0.00 R^2 0.45 No. of observations 309	SD 0.054 α 0.007 p-value 0.11 β 0.80 p-value 0.00 C_{HM} -0.45** p-value 0.00 Θ 0.00 p-value 0.99 R^2 0.65 No. of observations 153	SD 0.034 α 0.004 p-value 0.31 β 0.33** p-value 0.00 C_{HM} -0.11 p-value 0.44 Θ -0.48** p-value 0.00 R^2 0.23 No. of observations 156
Capital Guaranteed Fund 1	Mean 0.0001 SD 0.041 α 0.007** p-value 0.00 β 0.69** p-value 0.00 C_{HM} -0.37** p-value 0.00 Θ 0.19 p-value 0.44 R^2 0.58 No. of observations 309	Mean -0.002 SD 0.055 α 0.005 p-value 0.17 β 0.84 p-value 0.00 C_{HM} -0.41** p-value 0.00 Θ 0.37 p-value 0.48 R^2 0.72 No. of observations 153	Mean 0.0015 SD 0.029 α 0.003 p-value 0.23 β 0.42** p-value 0.00 C_{HM} -0.14 p-value 0.19 Θ 0.37 p-value 0.13 R^2 0.41 No. of observations 156

As for the θ, the term added to control for the auto correlation of returns, no funds' portfolios showed positive significant value for the AR term θ, implying that Egyptian funds' portfolios do not show significant auto correlation and confirming the evidence on the absence of market timing abilities and the presence of some selection abilities for Egyptian Funds' portfolios after adjusting for the lag funds excess returns. And again the whole model shows the close values for coefficient of determination with F-test value significant at 0.01 for all the funds indicating that the model's explanatory power of the variations of excess returns according to these three parameters is strong. The results provided by this study is consistent with the results derived in many studies cited as those by Fabozzi and Francis (1979), Grinblatt, Titman and Wermers (1995), Wermers (2000) and Cuthbertson et al. (2010), all provided evidence on the absence of market timing abilities. With respect to emerging markets, the results are inconsistent to the results of Xu (2005) who utilized unconditional market timing tests and concluded that China funds showed positive market timing performance but negative security selection abilities and Imisiker and Ozlale (2008) who tested those abilities in Turkish funds and found some evidence of market timing and very weak evidence of security selection.

Conclusion

Measuring Egyptian Fund managers' abilities using three different market timing models using weekly from January 2008 to January 2014, and two sub- periods (the pre-revolution period from 2008 to 2011 and the post- revolution period from 2011-2014) showed that all funds' portfolio had either negative or insignificant market timing coefficients, while at minimum 50 per cent of the funds' portfolios sampled showed positive significant security selection abilities both in the overall period sampled and in the post-revolution period. The results showed that for Egyptian funds which were actively engaged in market timing activities were unsuccessful in anticipating the direction of the market and switching their portfolio holdings between stocks and treasury bills accordingly.

As the empirical literature has not yet fully exploited the timing models methodologies in the immature, emerging markets, this study is particularly important to provide insights on the timing and security selection abilities in one of the largest, emerging Arab markets which is the Egyptian market. This study will not only help local investors understand the performance of the Egyptian mutual funds but also can help foreign fund managers and investors to understand the performance of the existing mutual funds' industry in a fast growing, emerging, Arab market as that of Egyptian market. This market is in transition and hence not stable, yet it offers an opportunity to investors to benefit from the mispricing opportunities that may exist therein. This study employs unconditional not allowing for varying betas, however it is believed that there are other areas that could be explored by further research. There is a need to evaluate mutual funds timing ability more comprehensively when more data become available as daily net asset values, to provide more solid conclusions about Egyptian mutual funds' performance. It is argued that conditional models allowing for varying betas may offer more realistic results than those offered by unconditional models (Cuthbertson et al., 2010) which also open the room for future research. The findings of this paper should be evaluated with caution since it is based on a limited sample from only one emerging Arab market. Recent literature cited for emerging markets and specifically for Egyptian market was

using monthly data. This particular study is using weekly returns for the equity funds and for the market index. However, the ability to statistically identify the market timing ability will be higher for a shorter sampling interval, that is using daily data will provide more accurate results as opposed to weekly and monthly data. Limited data availability imposed some restrictions on the models constructed, thus we recommend measuring timing abilities using daily data when available.

References

Alesina A, Perotti R. (1996). "Income distribution, political instability, and investment", European *Economic Review*, vol. 40, pp. 1203-28.

Amporn Soongswang; and Yosawee Sanohdontree. (2011), "Open-Ended Equity Mutual Funds", *International Journal of Business and Social Science*, vol.2, no.17, p.127.

Bachelier, Louis (1900) trans. James Boness. "Theory of Speculation", in Dimson E. and Mussavian M. (2000).

Bello, Z. Y. & Janjigian, V. (1997). "A reexamination of the market timing and security selection performance of mutual funds," *Financial Analysts Journal*, vol.53, pp. 24-31.

Chan, Y., Chui, A., Kwok, C., (2001). "The Impact of Salient Political and Economic News on the Trading Activity", *Pacific-Basin Finance Journal*; vol. 9, pp. 195-217.

Chau, F., Deesomsak, R., & Wang, J. (2014). "Political uncertainty and stock market volatility in the Middle East and North African (MENA) countries", *Journal of International Financial Markets, Institutions & Money,* vol.28, pp1-19.

Cuthbertson, K., Nitzsche, D., & O'Sullivan, N. (2010). "The Market Timing Ability of UK Mutual Funds," *Journal of Business Finance and Accounting*, vol.37, pp. 270-289.

Daniel, K D (1998) "Investor psychology and security market under- and overreactions", *Journal of Finance*, vol. 53, pp1839-1886.

Deb, S.G., Banerjee, A. & Chakrabarti, B. B. (2007). "Market Timing and Stock Selection ability in India: An empirical investigation", *Vikalpa*, vol.32, no.2.

Dimson E. and Mussavian M. (2000). "Market efficiency", *The current states of Business Disciplines,* vol.3, pp.959-970.

Egypt, C. B. (2011). *The Egyptian Exchange: Annual report.* 2011. Retrieved fromhttp://www.egx.com.eg/getdoc/aa66c418-dbe7-4447-a602-dcab01b12e84/AnnualReport-2011_en.aspx, accessed on November 24, 2014.

Fabozzi, F.J., Francis, J. C. (1979). "Mutual fund systematic risk for bull and bear markets: An empirical examination," *Journal of Finance*, vol. 34, pp. 1243-1250.

Fama, E. (1970). "Efficient Capital Markets: A Review of Theory and Empirical Work", *Journal of Finance*, vol.25, pp. 383-417.

Fama, E. (1972). "Components of Investment Performance", *Journal of Finance*, vol. 27, pp. 551-567.

Fiotakis, T H, Philippas, N (2004) "Chasing trend and losing money: open end mutual fund investor's trading behavior in Greece", *Applied Economics Letters*, vol. 11, pp 117-121.

Grinblatt, M, Titman, S, Wermers, R (1995) "Momentum investment strategies, portfolio performance and herding: A study of mutual fund behavior", *The American Economic Review*, vol.85 (5), pp 1088-1105.

Henrikson, R. D. (1984). "Market timing and mutual fund performance: An empirical investigation", *Journal of Business*, vol.57, pp. 73-96.

Henrikson, R, Merton R. (1981). "On Market Timing and Investment Performance. II. Statistical procedures for Evaluating Forecasting Skills", *Journal of Business*, vol.54, pp. 513-533.

Hung, J.C., Jiang, S.J., Chiu, C.L, (2007). "Jump risk of presidential election: evidence from Taiwan stock and foreign exchange markets", *Applied Economics*, vol. 39; pp. 2231-2240.

Imisiker, S. & Özlale, Ü. (2008). Assessing Selectivity and Market Timing Performance of Mutual Funds for an Emerging Market: The Case of Turkey. *Emerging Markets Finance & Trade,* 44, pp. 87–99.

Jensen, Michael (1968). "The Performance of Mutual Funds in the Period 1945-1964", *Journal of Finance*, vol. 23, pp. 389-416.

Kaushik, A. And Pennathur A. K. (2012), "An empirical examination of the performance of real estate mutual funds 1990-2008", *Financial Services Review*, vol 21, pp. 343-358.

Markowitz, H. (1959), Portfolio Selection: Efficient Diversification of Investments. New York: John Wiley and Sons.

Musah, A, Senyo, D. and Nuhu, E. (2014). "Market Timing and Selectivity performance of mutual funds in Ghana," *Management Science Letters,* vol.4, pp. 1361-1368.

Ministry of Investment (2009) Annual Report 2009 available at www.eip.gov.eg. Accessed on January 24th, 2014.

Nassir, A., Mohamad, S. and Ngu, M.H. (1997). "Selectivity and Timing: Evidence from the Performance of Malaysian Unit Trust", *Pertanika Journal of Social Science and Humanities*, vol.5, pp. 45-57.

Nesbitt, S. L. (1995). "Buy high, sell low; Timing errors in mutual fund allocations," *Journal of Portfolio Management*, vol.2, pp. 57-73.

Samira, B.B. and Slaheddine, H. (2011), "Predicting Tunisian mutual fund performance using dynamic panel data model", *The Journal of Risk Finance*, vol. 12, no. 3, pp. 208-225.

Shankar, S. G. (2007). "Active versus Passive Index Management: A Performance Comparison of the S&P and the Russell Indexes", *Journal of Investing*, vol.16, no.(2), pp. 85-95.

Sharpe, William (1966). "Mutual fund performance", *Journal of Business*, vol.39 (1), part2: supplement on security prices, pp.119-38.

Sharpe, William (1964). "Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk", *Journal of Finance*, vol.19, pp 425-442.

Stefeai, P., Wadi, O W., and Abbas KM. (2013). "Egyptian mutual funds analysis: History, performance, objectives, risk