Evidence of the overconfidence bias in the Egyptian stock market in different market states

Ayman H. Metwally
Omneya Darwish
Arab Academy for Science, Technology& Maritime Transport
Lexandria, Egypt

Keywords
Overconfidence bias, security markets, Egyptian stock market, behavioural finance, market return, market turnover

Abstract

Traditional finance theories fail to explain several anomalies observed in security markets. High levels of market turnover are among the most challenging market puzzles that have been documented in many security markets. Several studies assert the correlation between past market return and current market turnover. Behavioral finance theories assume that overconfidence bias is the reason behind this relation.

Hence, this paper aims to study the impact of overconfidence – a behavioral bias stemming from the second building block of behavioral finance "cognitive psychology" and affecting traders' beliefs and thereby their trading behavior in form of excessive trading. DeBondt and Tahler (1995).

The study tests the overconfidence bias in the Egyptian Stock market during the period from 2002 till 2012 on the aggregate market level trough examining the relation between market returns and market turnover in different market states, seeking to document or deny whether overconfidence bias encourages investors to trade or not . The whole period is divided into four sub periods; two tranquil upward trending (2005-2005) and (2005-2008) and two volatile and down ward trending (financial crisis 2008-2010) and the (Egyptian Revolution Period 2010-2012)

A quantitative research using secondary data and applying time series statistical techniques is designed. The research is following Statman et al. (2006) methodology. Time series analysis, which is based on four statistical techniques; mainly Vector Auto Regression, Optimal Lag Selection, Impulse Response Function and Granger Causality Tests are being used. Market Turnover ratios are used as proxies for overconfidence.

The research finds a significant impact of past market return on current turnover in lag1, then turns negative in lag 2, and returns back positive in lag3, then remains positive and significant until lag5. This is in line with the overconfidence and self-attribution theory of Denial et al. (1997).

Market States are found to be strongly affecting the trading activity within the Egyptian Stock Market, especially in an upward trending market. Trading activity is triggered by investors' overconfidence when the Egyptian Stock Market is upward trending. There is also a positive significant impact of market gains on Market turnover in subsequent periods.

Introduction

According to the traditional finance theory, a market is efficient when a large number of rational investors act to maximize their profits in the direction of individual securities (Fama1960). In general, standard finance theories are designed to provide an elegant mathematical explanation that oversimplifies the reality. Nevertheless, some puzzles found on the financial markets, which previously could not be solved using these traditional finance theories are accounted for once the field of behavioral finance was assumed (Shleifer 2000).

The new paradigm of behavioral finance i.e., finance from a broader social science perspective including psychology and sociology is now the most vital research programs, and it stands in sharp contradictions with the efficient market hypotheses. Many psychological and empirical studies in finance have found that people are not always rational, and systematic cognitive biases will lead to deviations from inferences drawn by classic theory.

The overwhelming empirical predication of the efficient market hypotheses anticipate that prices should react quickly and correctly to the news, hence investors who receive the news late will not be able to profit from this information. Also, prices should neither overreact nor under react to information and thus no trends nor price reversals should be observed in the market. However these predictions have been strongly challenged. One of the main observed puzzles is high trading volume which has been found in several developed financial markets. *Statman et al* (2006); *Chuang and Lee* (2006). The New York Exchange (NYSE) for example recorded an average monthly turnover in 2010 of approximately 100% .

High trading volume has been considered "the *single most embarrassing fact to the standard finance paradigm*" (DeBondt and Thaler 1994). Since the basic paradigm in classic finance cannot explain the excessive trading volume in financial markets, behavioral finance theorieshave been applied to enable better understanding of financial market and present theories that deviate from the assumption of rational agents.

Behavioral finance studies assume that the reason behind excessive trading is investors' overconfidence bias. DeBondt and Thaler (1995) states that "*perhaps the most robust finding in the psychology of judgment is that people are overconfident*." Overconfidence is a cognitive bias. It is the outcome of heuristic simplification (i.e., self-deception). It occurs when people tend to think that they are better than they really are (Trivers 1991). The psychology and behavioral science literature characterize people that behave as if they have more ability than they actually possess as being overconfident (Lichtenstein et al., 1982; Yates, 1990 and Goodie and Foster, 2004). Investors who attribute past success to their skill and past failure to bad luck are likely to be overconfident. An overconfident investor will seek to utilize his perceived superior ability to obtain large returns. Accordingly, overconfidence is characteristic of people, not of markets. (Odean 1998a)

As markets behavior is nothing more than aggregating the behavior of all market players, overconfidence bias will accordingly influence the behavioral ofthe overall Stock Market in return.Many scholars have tested the overconfidence bias theory in the finance literature. In *Daniel et al.* (1998), the author refers to overconfidence as being a result of biased self-attribution with regard to past investment outcomes. They argue that overconfidence implies over-reaction to private information and under-reaction to public signals and thus leads to market mispricing. Later, in *Gevias and Odean* (2001), the author improves the theory that some investors tend to exaggerate their own ability and ignore the fact that they are in a bull market. In *Statman et al.* (2006), Statman conducts empirical research regarding the impact of overconfidence on trading volume in the US market. Given that the level of overconfidence changes with market return, they use market return to measure the degree of overconfidence. They find a significantly positive relationship between market-wide turnover and lagged market returns and view it as evidence of overconfidence. Also, *Glaser and Weber* (2007) document that investors with higher degrees of confidence tend to operate more in the German Stock Market, which is in line with *Statman et al.*'s (2006) finding.

According to Morgan Stanley,the Egyptian Stock Market is one of the best emerging financial markets. In the last ten years, it has been considered the fourth highest growing market in all emerging markets with a growth rate of 19%. Thus, it deserves more attention and investigation Ansary (2013). Also, recent studies have clearly proved the inefficiency of the Egyptian Stock Market and that it is characterized by noise and speculativetrading behavior. (Omran 2007 and Ansary2012)

Therefore, the overall aim of this research is to apply behavioral finance concepts to better explain the trading behavior within the Egyptian StockMarket. The study will try to advance an understanding of the physiological reasons that influence the relation between market return and the overall market turnover. More precisely, it will investigate the extent to which market return trigger inventors overconfidence and thereby affects the overall market turnover level. In other words, the research will examine the overconfidence hypothesis within the Egyptian Stock Market.

The study tests the overconfidence bias in the Egyptian Stock market during the period from 2002 till 2012 on the aggregate market level trough examining the relation between market returns and market turnover in different market states, seeking to document or deny whether overconfidence bias encourages investors to trade or not . The whole period is divided into four sub periods; two tranquil upward trending (2005-2005) and (2005-2008) and two volatile and down ward trending (financial crisis 2008-2010) and the (Egyptian Revolution Period 2010-2012)

Research objectives

Hence, the main research objectives are:

- Investigating the relation between past markets' return and current market turnover in volume and value.
- Discovering whether the Egyptian market and its investors are prone to the overconfidence bias
- Testing the variations in the turnover in volume and value resulting from different market status.

Literature Review

Examining the behavior of financial markets and its' players is of great interest and importance to most finance scholars. Several traditional finance theories have been introduced seeking to simulate the mechanism of both the markets and its investors from a normative and rational perspective. Statman (1999) mentions "*Standard finance is the body of knowledge built on pillars of the arbitrage principles of Miller and Modigliani, the portfolio principles of Markowitz, the capital assets pricing theory of Sharpe, Lintner, and the option- pricing theory of and Black, Scholes, and Merton*."

The Efficient Market Hypothesis (EMH) that has emerged during the 1970s from the doctoral dissertation of Eugena Fama, is a further continuity of the rationality stream governing the traditional finance field. According to the theory, investors think and behave rationally when buying and selling stock, use all available information to form rational expectations, and thereby prices are accurate reflecting fundamental values. In turn, markets are stable and efficient and the overall economy is systematically moving toward general equilibrium.

Surprisingly, close observation of financial markets reveals that neither the markets nor the individual investors' trading behavior can be easily understood using the traditional finance framework. Even Eugena Fama states in a very important article that appeared in the "Wall Street Journal" that stock prices could become "*somewhat irrational*" Hilsenrath (2004).

In reality, investors do not think and behave rationally, but on the contrary, their decisions are driven by emotions and cognitive errors. Shiller (1999). In the early 1990 the field of behavioral finance has been developed, after the failure of the efforts that tried to defend the efficient market model. Siller (2002) argues that, "*Theoretical models of efficient financial markets that represent everyone as rational optimizer can be no more than metaphors for the world around us* ".

As previously mentioned, the basic paradigm in traditional finance is based on the assumption that agents are rational and markets are efficient. In such an ideal world, where investors are rational investors and markets are efficient, observing high trading volume is considered a puzzle. Statman (2003) argues that in a perfectly rational world, it is very difficult to explain why any trading activity takes place. Grossman (1976) and Milgrom and Stokey (1982) note that an offer to trade indicates to other counter parties that the trader might have private information. Rational traders refuse to trade under such conditions, and accordingly trading volume is equal to zero.

Kyle (1985), Admati and Pfleiderer (1988), and Foster and Viswanathan (1990) introduce the role of liquidity traders to get out of the no-trading trap, but this solution is incomplete. Later, Subrahmanyam (1991) shows that rational liquidity traders trade only baskets of securities, avoiding trades in individual securities. But baskets of securities cannot be traded unless individual securities are traded, since pricing of baskets requires pricing of the underlying securities. Statman (2003).

Then, Harris and Raviv (1993) and Shalen (1993) attempt to overcome the no-trading equilibrium through traders who differ in their assessment of common information. However, it is still unclear why rational traders would differ in their interpretation of common information Statman (2003).

Behavioral Finance

Behavioral finance emerges as a new paradigm, shedding the light on the role of the psychological aspects that influence the investor's financial decision making process Barber and Odean (1999). Hence, the new discipline seeks to better understand financial phenomenon which the traditional models failed to analyze.

"*The field of modern financial economies assumes that people behave with extreme rationality, but they do not. Furthermore, people's deviations from rationality are often systematic. Behavioral finance relaxes the traditional assumption of financial economics by incorporating these observable, systematic and very human departures from rationality into standard models of financial markets*". Barber and Odean (1999

Hence, in a market consisting of human beings, it seems logical that explanations rooted in human and social psychology would be of great importance in advancing our understanding of stock markets behavior. Recent research has attempts to explain the persistence of anomalies by adopting a psychological perspective. Evidence in the psychology literature reveals that individuals have limited information processing capabilities, exhibit systematic bias in processing information, are prone to making mistakes, and often tend to rely on the opinion of others Pompian (2004). Riccardi and Simon (2000) defines the field as following:"*Behavioral finance attempts to explain and increase our understanding of the reasoning patterns of investors, including the emotional process involved and the degree to which they influence the decision making process. Essentially, behavioral finance attempts to explain the what, why and how finance and investing, from a human perspective*".

Behavioral finance constitute of two building blocks which are cognitive psychology and limits to arbitrage. In a market where rational and irrational investors trade, irrationality may affect security prices, moving them away from their fundamentals and leading to the presence of the first block of behavioral finance called "Limits to Arbitrage". The second block "Cognitive Psychology " is concerned with describing the various forms of observed irrationality using behavioral models, which test the systematic biases that arise when people formulate their beliefs and preferences. While beliefs are related to how agents formulate their expectations, preferences deal in particular with how investors evaluate risky gambles. Barbaris and Thaler (2002)

Overconfidence in Finance

Economists started implementing psychological findings into economic models starting in the 1970s, but the most rapid development of that trend began in the 1990s. Since then, overconfidence has also become a field of interest for economists, mainly in the context of behavior on financial markets. Overconfidence is defined usually as an overestimation of one's knowledge or precision of private information, or the interpretation thereof. Alternatively, an underestimation of variance of signals or volatility of asset values is also considered.

Some puzzles found on the financial markets, which previously could not be solved using the standard economic theory, were successfully accounted for once overconfidence of investors was assumed. These issues include primarily continuing securities misevaluations, excessive trading volumes and the disposition effect, i.e. a tendency to sell well-performing stocks and to hold on to losing ones. The potential presence of overconfidence on the markets and its persistence in the longer term spurred an on-going discussion on the well-established idea of efficient markets and economic agent rationality. Despite some skepticism among economists on the existence and effect of overconfidence as such, its prevalence on financial markets has been proven repeatedly, through methods ranging from experimental and questionnaire studies to formal models and financial market data.

Overconfidence and Behavioral Finance Models

In most of the proposed behavioral finance models, overconfidence is often interpreted as:

- Investors overestimating the precision of their information (sometimes more specifically; overestimating private signals and underestimating the public ones),
- Investors underestimating risk, which makes them e.g. hold riskier portfolios.

Hence, considering the existence of such assumptions of overconfidence, the impact of overconfident investors is analyzed to define their effects on financial markets. Such effects are reflected as observed market anomalies such as: excessive trading volumes, trading profitability, short- and long-term asset misevaluations and stock returns.

In the following part of the chapter, we will highlight the main behavioral models that explain the impact of overconfidence bias on the trading behavior and return.

Overconfidence and Trading Volume

Consequently, various scenarios proving the persistence of overconfidence on the market are modeled. Odean (1998) assumes that traders, insiders and market makers may unconsciously overestimate the precision of their information and rely on it more than is warranted, while traders display the better-than average effect, evaluating their information as better than that of their peers. Such overconfident market participants cause an increase in the trading volume. The same results are demonstrated by Benos (1998) in his model of an auction market with informed traders, where again the participation of risk-neutral investors overestimating the precision of their information leads to an increased trading volume

Empirical studies of the overconfidence bias in financial markets

Despite the several experimental and questionnaire studies, as well as the rapidly developing field of theoretical modeling, it is the empirical analysis of financial market data that is considered the corner stone of studying the overconfidence bias.

Empirical studies contend that the people overestimating their trading and investment skills may be more likely to choose their career as traders or they may trade actively on their own. Moreover, these overconfident traders can survive and dominate the markets in the longer horizon (Benos, 1998; Daniel et al, (1998); Gervais and Odean, (2001); Hershleiffer et al. (2001) Therefore, if most investors suffer from overconfidence and if overconfidence is a systematic cognitive bias, it is possible to trace investor overconfidence by analyzing the market level trading behavior (investors' aggregated trading behavior). Chuang and Lee (2006) and Chuang and Susmel (2011) using market level data, have found a positive relationship between current trading level and past returns that is consistent with overconfidence theory. These studies test the implication of investor overconfidence related to trading volume within the framework of vector auto regression (VAR).

There are other studies which analyze the predictions of overconfidence theory by focusing on trading activity of individual investors. These studies find positive link of trading activity with past returns using unique datasets consist of individual investors' accounts. Chou and Wang (2011); Glaser and Weber (2007); (2009); Odean (1999). Glaser and Weber (2009) analyze individual investors' portfolios. They posit that only high portfolio returns can lead investors to buy high risky stocks, therefore, dynamic changes in investor overconfidence can only trigger from their past portfolio returns rather than from prior market returns.

However, models of overconfident investors such as those by Gervais and Odean (2001) and Statman et al. (2006) tell that that overconfident investors trade aggressively following market gains especially in bull market. A recent study Chuang and Susmel (2011) test the predictions of overconfidence models and finds that both individual and institutional investors trade more aggressively following market gains. The findings of the study also indicate, investors' tendency to trade more in riskier securities following market gains.

Overconfidence in developing financial markets

As for developed financial markets, recent empirical studies examine the overconfidence bias in several emerging stock market. Results are controversial. Ziane (2013) investigates the overconfidence bias in the Tunisian and Chinese financial markets. In both markets, overconfidence bias is documented, but with little evidence in the Tunisia than China. Also, past market returns affect trading volume over some months in the two examined markets. Significant contemporaneous positive relation between volume and volatility is documented. Moreover the studies shows the predictability of stocks return depending on lagged volume, which a further violation of market efficiency (Karpoff, 1987, Gallant et al., 1992; Zhao and Wang, 2003; Wang and Huang 2012).

Two empirical studies investigate the investor overconfidence in Pakistan Stock market. Fayaz and Riaz (2012) study seek to test whether overconfident investors trade more aggressively, assuming that past returns lead investors to become overconfident, therefore turnover is positively related to past returns. Also, they hypothesize that trading by overconfident investors contributes to the returns volatility. The research is conducted using market data from Karachi Stock Exchange (KSE) for the period November 1999 to October 2010.

The study reveals significant positive response of turnover to market return shock after controlling for concurrent and lagged return dispersion and returns volatility. This response was persistent for quite a long time. Thus, results confirm the presence of investor overconfidence at KSE. Consistent with previous studies, the study finds significant contemporaneous positive relationship between turnover and returns volatility. Regarding portfolio rebalancing, investors take two months to respond to cross sectional variations in security prices to rebalance their portfolios for eliminating unsystematic risk. Moreover, returns predictability based on past turnover in the VAR and associated impulse response function analysis is found, which is another violation to the strict market efficiency hypothesis asserted before in emerging financial markets such as China and Tunisia.

The second research on the Pakistan stock market is presented by Tariq and Ulla (2013). The study results indicated that previous days returns have impact on today's turnover, which indicates that Pakistani investor keep an eye on returns of the security and accordingly are overconfident. This may lead to irrational decision making leading to generating losses. The impulse response function predicts that returns are reverting to zero and yet the turnover is high. This will lead to correction in market and investor will suffer loss.

The Egyptian Stock market

The Egyptian stock market is one of the oldest in the world, and it comprises two exchanges that have been recently integrated allowing investors to have access to stocks listed on both of them; Alexandria stock exchange, which was established in 1888, and Cairo stock exchange that was established in 1903. It was the fifth most active stock exchange worldwide in 1940s, prior to the nationalization of industry and choosing the central planning policies in the early 1950s. These policies led to a significant reduction in the market activities, and as a result the market remained largely dormant throughout the 1980s.

In the 1990s, the market recovered again after the 40 years of stagnation, and since then it has been considered the premier capital market in the Middle East and North Africa that best serves its stakeholders (Mecagni&Sourial, 1999). In 2009, the Egyptian Exchange was announced thesecond best developing stock exchange in Africa (the Egyptian stock exchange, 2010). Also it was awarded the best stock exchange in Africa in a competition organized by New York stock exchange in 2008.

The Egyptian Stock market trading behavior

Girad and Omran (2009) examine the interaction of volatility and volume in 79 listed companies in the Egyptian Stock market over a period from January 1998 to May 2005. The authors find that information size and direction have a negligible effect on conditional volatility and, as a result, the presence of noise trading and speculative bubbles is suspected. Also, the persistence in volatility is not eliminated when lagged or contemporaneous trading volume is incorporated into a GARCH model. It is shown that, when volume is further broken down into its expected and unexpected components, volatility persistence decreases. This is especially true after May 2001, which marks the beginning of a succession of major stock market reforms. It was also found that anticipated information shocks can have a negative impact on the volatility of return, particularly prior to May 2001

The study of Habib (2011), tested empirically the relationships between stock return and trading volume in the Egyptian stock market. Using data from The Egyptian Stock Exchange about 26 securities during the period 1998 – 2005, the study establishes several regularities about the role of trading volume in predicting the volatility of stock return and return itself. The main conclusion is that lagged stock trading has little role to play in forecasting the future return volatility. The second finding of the paper relates to the predictability of returns. The analysis suggests that there is no relation between volume and first autocorrelation of stock return. Third the Granger causality tests indicate a bidirectional causal relation between volume and volatility. Specifically, any changes in return volatility leads to changes in trading volume, and vice versa. However, the study doesn't support any causal relation between stocksreturn and volume.

Anasary and Attuea (2012) conducted a further research that examines the relationship between trading volume and stock return. The study analyzes the informational arrival pattern within the Egyptian Stock Exchange. The sample included 26 securities out of the EGX 30 listed companies during the period from 2001 to 2010. The research reveals several interesting findings such as a positive correlation between trading volume (using both logarithms of turnover ratio and transaction number as measures of trading volume) and return, weak but high significant contemporaneous relationship between trading volume using both measures and return indicating that the Egyptian Stock Market is informationally inefficient and that noise traders exists . The study results correspond to those finding of Omran and Girard (2007) and El Diftar (2008). Also, negative lagged relationship using two and five days lag period between trading volume (using both measures) and return which means that increasing (decreasing) trading volume in the previous two and five days lead to decreasing (increasing) return and vice versa, this result contradict the results reached by previous studies and ascertain the difference of the Egyptian security market from any emerging and developed markets. Moreover, they states that return in the Egyptian security market is characterized by persistence and clustering, which presents evidence that the Egyptian security market is informational inefficient. Bidirectional causality relationship using two and five days lag period were found which mean that Sequential Information Arrival Hypothesis (SIAH) is applicable in the Egyptian security market, also weak contemporaneous relationship confirms the applicable of SIAH in the Egyptian security market. Regarding the lags, using five days in testing causality relation, the results were more robust than using two days, which indicate the weak response of the Egyptian security market to information flow. Finally, transactions number is better in representing trading volume than logarithm of turnover ratio in the Egyptian security market

Most recently, a study by Abdeldayem and Mahmoud (2013) investigates the impact of trading motives on the dynamic relationship between stock returns and trading volume in Egypt by using the daily data of all listed 167 stocks traded in the Egyptian Exchange (EGX) for a period of 6 years, from January 2006 till December 2011. The study asserts that speculative trade is dominant in emerging markets and is also associated with positive serial autocorrelation in stock returns. More precisely, the research finds a positive serial autocorrelation prevalent in the Egyptian Exchange (EGX); that 83% of our sample has positive serial autocorrelations and 60% of the sample has significant positive autocorrelations. This result is consistent with the literature as market anomalies tend to be more dominant in emerging markets and that the Egyptian stock market efficiency is weak.

Methodology and Data

This quantitative research is applying empirical tests that are time series oriented. It is based on secondary data namely; monthly observations obtained from the Egyptian Stock Exchange. We use Vector auto regression, Optimal lag Selection, Impulse Response Function, Granger Causality test and Correlation Matrix to test how the market overall trading activities relate to lagged returns.

Data

Back to the literature relevant to this study, Statman (2003) uses daily and monthly observations. Accordingly, secondary data is purchased from two main resources:

1. Egypt of Information Dissemination (EGID)
2. Meta Stock

Data Sample

Due to data availability, the study sample covers the period form the January 2002 up to December 2012. The data set consists of two main data samples:

A) Daily based Data

- Daily records for EGX30 index return points.
- Daily stocks opening prices
- Daily stocks closing data
- Daily market trading value

- Daily market trading volume

B) Monthly based Date

- Monthly market capitalization
- Monthly volume of traded shares
- Monthly Value of traded shares
- Monthly number of market listed shares

We focus on monthly observations under the perspective that changes in investor overconfidence occur over monthly or annual horizons (Odean, 1998; Gervais and Odean, 2001; Statman, Thorley and Vorkink, 2006).

The full sample data covers 11 years covering 132 month. The full sample is then divided into four sub periods; two representing tranquil sample and the other are volatile samples. The sub periods are:

Tranquil periods	Volatile periods
Sub-period 1 : 2002 – 2004	Sub-period 3: 2008 – 2010
Sub-period 2 : 2005 – 2007	Sub-period 4 : 2011- 2012

These sub periods is used to compare the obtained results in different market states.

Dependent Variable

Market turnover, *mturnt*, is the month *t* market-wide turnover measured in percentage points. As by Lo and Wang (2000) turnover can be calculated in volume which is based dividing monthly traded shares by the number of outstanding shares.

Independent Variable

Monthly Market return, *mrett, is* the month *t* return. Following Sheikh et al. (2012) in this study the returns of EGX 30 are used as proxies for the overall Egyptian Stock market return. The index return is calculated as the difference if natural log of ending value of the index daily and monthly basis.

$$R_t = L_n(P_t) \quad L_n(P_{t-1}) = L_n(P_t/P_{t-1}) \qquad (1)$$

Hence, the Rt is market return for period t, Pt is current period closing value of index and Pt-1 is previous period closing value of the index.

Research Hypothesis

H1: Investors are overconfident, therefore, the current trading activity is positively related to past market returns.

H2: "Market States affect investors' overconfidence and so trading activity is affected in subsequent periods."

H3: "Overconfident Investors trading activity levels change according to different market states."

H4: Market gains affect investors' overconfidence and affect trading activity in subsequent periods.

Analysis and Results

Descriptive Analysis

Descriptive statistics are performed to describe the basic features of the data employed in the study. They provide a simple overview about the data sample and its measures.

Table 4.1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Value	118	.000000	.473650	.06441331	.052011276
Volume	131	.000000	12.731447	3.08726578	1.998769130

Return	131	-.022408	.015596	.00093224	.005219526
Valid N (list wise)	118				

Table 4.2 Descriptive Statistics for Sub Period 2002 - 2004

	N	Minimum	Maximum	Mean	Std. Deviation
Value	36	.000000	.034000	.01315111	.011214711
Volume	36	.000000	2.695832	1.17406089	.578466371
Return	36	-.004073	.010650	.00249009	.003652975
Valid N (list wise)	36				

Table 4.3 Descriptive Statistics for Sub Period 2005 - 2007

	N	Minimum	Maximum	Mean	Std. Deviation
Value	36	.000000	.473650	.06603278	.072740497
Volume	36	.000000	6.552943	3.71118442	1.327990774
Return	36	-.009659	.015596	.00180735	.004467763
Valid N (list wise)	36				

Table 4.4 Descriptive Statistics for Sub Period 2008 - 2010

	N	Minimum	Maximum	Mean	Std. Deviation
Value	36	.053240	.193790	.09463917	.033355142
Volume	36	2.216282	12.731447	4.62976706	2.179006113
Return	36	-.022408	.010250	-.00032591	.006300374
Valid N (list wise)	36				

Table 4.5 Descriptive Statistics for Sub Period 2011 - 2012

	N	Minimum	Maximum	Mean	Std. Deviation
Value	23	.026510	.125160	.05839739	.024764699
Volume	23	1.527086	7.846391	2.69092919	1.425206854
Return	23	-.013048	.012471	-.00090656	.005787774
Valid N (list wise)	23				

Normality Testing

A data set should be normal or well-modeled by a normal distribution. As the table below shows the normality test of the dimensions under study, where it was found that all dimensions under study are found to be normal as P-value > 0.05, which means that the hypothesis of normality is accepted.

Normality Testing

	Kolmogorov-Smirnov[a]		
	Statistic	**Df**	**Sig.**
Value	.182	12	.200*
Volume	.237	12	.061
Return	.151	12	.200*

Unit Root Test

A unit root test has been applied to estimate the VAR model through the Augmented Dickey Fuller (ADF) tests, which are used to test for unit roots in the time series. The null hypothesis is that there is a unit root (Non Stationary) in the index under study, against the alternative that there is no unit root (Stationary) in the index under study.

The results of the ADFshows that the nullhypothesis of the series under consideration are not stationary (i.e., have a unit root) is significantly rejected at the 1% level in all cases. The stationarities o f those variables ensure that our empirical analyses below would not yield spurious outcomes. More importantly, we do not have to take into account the possible cointegration problem associated with stock return and trading volume when performing the (restricted) VAR model

Unit Root Test for the variables under study

Variables	P-value	Decision	
Turnover in Volume	0.000	Stationary	Level
Turnover in Value	0.000	Stationary	Level
Return	0.000	Stationary	First Difference

Inferential Analysis

Testing Investors' Overconfidence

H1:"Investors are overconfident; therefore, the current trading activity is positively related to past return."

In order to test the investors' overconfidence, VAR model is checked for the relationship between turnover and past returns.

$$Y_t = \alpha + \sum_{i=1}^{p} A_i Y_{t-i} + \sum_{j=0}^{s} B_j X_{t-j} + e_t$$

WhereYt is an n x 1 vector of the endogenous variables at time t, Xt is a vector of exogenous variables and et is an n x 1 vector of residuals. The coefficient matrices Ai and Bj estimate the time-series associations between the endogenous and exogenous variables in the system. P is the number of lags included for endogenous variables and S is number lags included for exogenous variables

Estimate the relation between past market return and current market turnover

1- *VAR Model*

Given that the market turnover in volume is the dependent variables, the estimated coefficient for the first lagged market return 73.48799 and it is significant at 5% confidence level and at the second lag -17.59822, but it is significant at 5%

2- **VAR Model for Volume in H_1**

	VOLUME	RETURN
VOLUME(-1)	3.309154	-9.40E-05
	(0.08171)	(0.00028)
	[4.15089]	[-0.33950]
VOLUME(-2)	4.202823	-0.000271
	(0.08126)	(0.00028)
	[5.26998]	[-0.98252]
RETURN(-1)	73.48799	0.228759
	(27.6283)	(0.09365)
	[2.65988]	[2.44272]
RETURN(-2)	-17.59822	-0.088389
	(27.9804)	(0.09484)
	[-0.62895]	[-0.93196]

C	0.689629	0.001999
	(0.27732)	(0.00094)
	[2.48673]	[2.12663]

The influence of past market return to the market turnover in volume only exists in the first lag, since the second lag of market return is not significant. The positive impact of the lagged market return on the market turnover fits our overconfidence hypothesis, although the affect is not as strong as we expected. The results are presented using the five lag selection criteria of the VAR model. It is found that that one criteria (Schwartz Criteria) is supporting the result at lag 2, while the other four criteria are all significant at lag 5.

Research Question No.1 (a)

What is the lead lag time between market's return and market turnover in volume?

2- Optimal Lag Selection

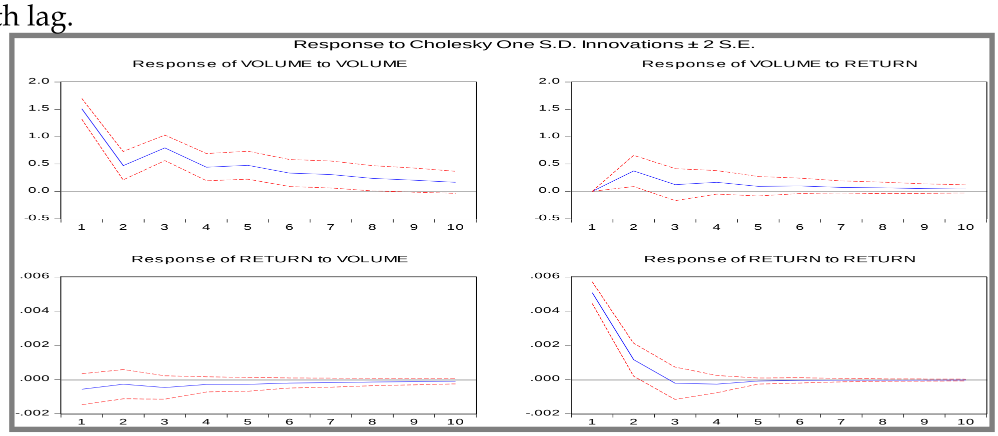
A model is fitted as VAR (p) models with different orders to determine a suitable lag length of the VAR model which will show the value of p minimizing the model selection criteria. Model selection criteria for VAR (p) could be based on Akaike (AIC), Schwarz-Bayesian (BIC),

Optimal Lag Selection for Volume in H_1

Lag	LogL	LR	FPE	AIC	SC	HQ
0	196.6911	NA	0.000116	-3.385933	-3.338195	-3.366556
1	220.5140	46.40284	8.22e-05	-3.730679	-3.587465	-3.672549
2	233.8974	25.60293	6.98e-05	-3.893867	-3.655178*	-3.796984
3	242.1135	15.43194	6.49e-05	-3.967191	-3.633025	-3.831554
4	243.4904	2.538382	6.80e-05	-3.921572	-3.491931	-3.747183
5	255.1530	21.09409*	5.95e-05*	-4.054835*	-3.529718	-3.841692*
6	257.9941	5.039883	6.08e-05	-4.034680	-3.414087	-3.782785
7	260.9045	5.061487	6.20e-05	-4.015730	-3.299661	-3.725081
8	262.1964	2.201946	6.51e-05	-3.968634	-3.157089	-3.639232

3- Impulse Response Function

According to Panel B, the response of market turnover in volume to shock of market return exists until the fifth lag. More specifically, in lag one the response is not evident, but turns to large and positive in lag two. The impulse becomes negative in the third lag and dies out after the fifth lag.



Impulse Response Function for Turnover in volume for H_1

4- Granger Causality

The Granger causality test is used to determine if one index could be used in forecasting another. A time series X is said to Granger-cause Y if it can be shown that those X values provide statistically significant information about future values of Y. A model is fitted using the method of least square and Granger causality analysis with F-statistics. If the calculated value of F-statistics is larger than critical value, the original hypothesis of variable X can't cause variable Y was not proved, that is to say variable X is Granger reason of variable Y. As shown below, it could be claimed that turnover in volume granger cause return as P-value < 0.05. Also, return is claimed to granger cause or forecast turnover in volume as P-value < 0.05.

Granger Causality for Volume versus Return in H_1

Null Hypothesis:	Obs	F-Statistic	Prob.
RETURN does not Granger Cause VOLUME	121	3.94594	0.0025
VOLUME does not Granger Cause RETURN		2.87007	0.0179

Research Question No.2

Testing the correlation between past and current market turnover

What is the impact of past turnover on current turnover in volume?

Turnover with itself

The results of the VAR for H_1, conclude that turnover is in high correlation with its previous values. Thus, market turnover is auto correlated. The coefficients of the first lagged and second lagged market turnover areinsignificant, with the estimated parameters of 0.339154 and 0.428231.

VAR Model for Volume in H_1

	VOLUME	RETURN
VOLUME(-1)	3.309154	-9.40E-05
	(0.08171)	(0.00028)
	[4.15089]	[-0.33950]
VOLUME(-2)	4.208232	-0.000271
	(0.08126)	(0.00028)
	[5.26998]	[-0.98252]
RETURN(-1)	73.48799	0.228759
	(27.6283)	(0.09365)
	[2.65988]	[2.44272]
RETURN(-2)	-17.59822	-0.088389
	(27.9804)	(0.09484)
	[-0.62895]	[-0.93196]
C	0.689629	0.001999
	(0.27732)	(0.00094)
	[2.48673]	[2.12663]

This suggests that the market turnovers isaffected by their own behaviors in past two periods. Hence, current turnover can predict the following two months turnover

Research Question No.3

Examining the contemporaneous relation between currentmarket return and current market turnover

a) *What is the impact of current market return on current turnover in volume?*

It has been observed that the impact of current return on current turnover is significant with coefficients of 55.24862 and p value equal 0.03652. This ascertains the contemporaneous and strong impact of market return on market turnover.

EstimatedEquation for Turnover in H_1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN	55.24862	60.80161	1.908670	0.03652

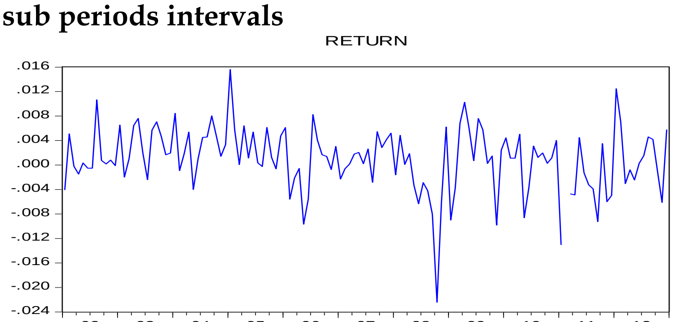
R-squared	-2.382606	Mean dependent var	3.087266
Adjusted R-squared	-2.382606	S.D. dependent var	1.998769
S.E. of regression	3.676108	Akaike info criterion	5.449191
Sum squared resid	1756.791	Schwarz criterion	5.471139
Log likelihood	-355.9220	Hannan-Quinn criter.	5.458109
Durbin-Watson stat	0.292942		

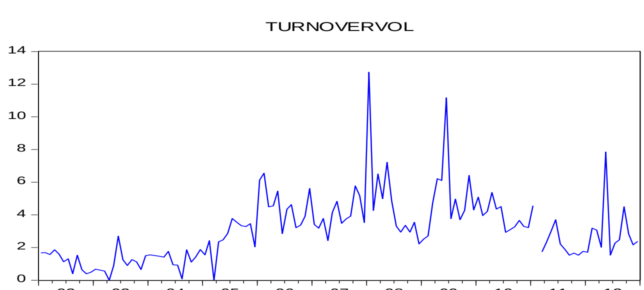
Testing the effect of market states on investors' overconfidence

H2: "Market States affect investors' overconfidence and so trading activity is affected in subsequent periods."

It had been mentioned that different market state may change the trading activity and thus investors' overconfidence. Accordingly, the whole research period will be divided 4 sub periods to reflect different market states in case of financial crisis (2008) and revolution (2011) in Egypt. The division performed was done, according to the graphs below and the effect had been tested for turnover.

Graphs to choose the sub periods intervals





1- *Estimated Equation*

An equation had been estimated including a dummy variable to reflect different market states. The table below shows that there is a positive high significant effect at 0.05 significance level (P-value = 0.0140). This means that there is a significant change in turnover in volume with different market states.

Estimated Equation for Volume in H_3

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	3.274646	0.182211	17.97170	0.0000
C(2)	16.65567	42.17137	0.394952	0.6935
C(3)	-171.8139	68.97811	-2.490846	0.0140

R-squared	0.062123	Mean dependent var	3.087266
Adjusted R-squared	0.047468	S.D. dependent var	1.998769
S.E. of regression	1.950753	Akaike info criterion	4.196943
Sum squared resid	487.0962	Schwarz criterion	4.262787
Log likelihood	-271.8998	Hannan-Quinn criter.	4.223698
F-statistic	4.239191	Durbin-Watson stat	1.035948
Prob(F-statistic)	0.016495		

The level of overconfidence varies according to changes in market states

H3:"Overconfident Investors trading activity levels change according to different market states."

As shown in table below, it was found that variation in turnover in volume when market state is up (0.00607) is higher than that when market state is down (0.00406). This means that there is a higher impact of market state on investors' overconfidence when it is up than when it is down.

T-test for Turnover in H_3

	Dummy	N	Mean	Sig.
Value	1.00	59	.04831559	0.001
	.00	59	.08051102	
Volume	1.00	72	2.44262265	0.000
	.00	59	3.87394891	

As shown in table below, it was found that time of affecting turnover is at lag 4, which means 4 months of significant effect.

Estimated Equations for Turnover in H_3

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.066095	0.005114	12.92558	0.0000
C(2)	-1.445966	1.537959	-0.940185	0.3491

R-squared	0.007563	Mean dependent var	0.064413
Adjusted R-squared	-0.000993	S.D. dependent var	0.052011
S.E. of regression	0.052037	Akaike info criterion	-3.056916
Sum squared resid	0.314112	Schwarz criterion	-3.009955
Log likelihood	182.3581	Hannan-Quinn criter.	-3.037849
F-statistic	0.883948	Durbin-Watson stat	1.579263
Prob(F-statistic)	0.349076		

Testing the effect of market gains on investors' overconfidence

H4:"Market gains affect investors' overconfidence and affect trading activity in subsequent periods."

It had been mentioned that market gains may change the trading activity and thus investors' overconfidence. Hence, we will test the affect of positive and negative market returns to reflect different market gains.

Estimated Equation

An equation had been estimated including a dummy variable to reflect different positive and negative market returns. The table below shows that there is a positive high significant effect at 0.01 significance level (P-value = 0.0000). This means that there is a significant change in turnover in volume with different market gains.

Estimated Equation for Turnoverin H_3

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.844295	1.886111	0.447638	0.6552
C(2)	0.076662	0.047500	1.613925	0.1090
C(3)	-0.037735	0.008207	-4.598099	0.0000

R-squared	0.143280	Mean dependent var	3.087266
Adjusted R-squared	0.129893	S.D. dependent var	1.998769
S.E. of regression	1.864442	Akaike info criterion	4.106435
Sum squared resid	444.9464	Schwarz criterion	4.172279
Log likelihood	-265.9715	Hannan-Quinn criter.	4.133191
F-statistic	10.70349	Durbin-Watson stat	0.992511
Prob(F-statistic)	0.000050		

Findings and Recommendations

After analyzing the research results, the following findings are presented:

- The past two months' market return affectstrongly the current turnover i.
- There is a positive significant impact of past market return on current turnover in lag 1, than turns negative in lag 2, returns back positive in lag 3 and remains positive significant until lag 5.
- Past market return affects current turnover for a long time. This outcome is in line with the overconfidence and self- attribution theory of Daniel et al. (1997).
- Conducting a Granger Causality test to investigate the contemporaneous relation between market return and market turnover; it has been found that:
- Current market returns positively and strongly affect current turnover.
- Current turnover positively and strongly affects current market return.
    - The above-mentioned relation proves that noise trading is available in the Egyptian Stock market, which contradicts with rational investors' assumption of traditional finance theories.

When taking different market states into consideration, through dividing the whole research period into four sub periods ; two tranquil – upward trending (2002-2005) and (2005-2008) and two volatile- down ward trending (financial crisis 2008-2010) and the (revolution period 2010-2012), the researcher finds that different market states strongly affect the trading activity within the Egyptian Stock Market.

Also, when comparing the impact of different market states or sub periods on market turnover, it can be concluded that the variation of the first two tranquil periods is higher than that of the other two volatile ones.

- This indicates that investors mistakenly attribute past market returns to their trading and valuation skills. They overestimate the precision and accuracy of their information. Consequently, they trade more aggressively subsequent to higher market returns to maximize their trading utility. On the other hand, when market is down they decrease their trading activity in subsequent periods.
    - Hence, the increased trading activity is triggered by investors' overconfidence when the Egyptian overall Stock Market is trending upward state.
    - Furthermore, the study goes deeper in analyzing the market turnover reaction to past market gains on future market turnover. Research reveals positive significant impact of market gains on turnover in subsequent periods.

Conclusion

From the above stated findings, the research concludes the following:

a) The Egyptian Stock Market is a psychologically affected market. The investors within the market are proven to be overconfident, as past (up to five months) market returns affect the overall current market turnover.
b) The percentage increase in the overall monthly Egyptian Stock Market return will consequently increase the number of traded shares per month.

Recommendations

The following recommendations are addressed to the Egyptian Exchange Management:

a) Improve information dissemination mechanism, as the Egyptian Stock Market responsiveness to information flow appears to be very weak, for example publishing fair value for each stock.
b) Establish a comprehensive and accessible database that includes complete date for each stock. The database should include the stock prices, trading volume, closing prices opening prices, and stock capitalization. In addition to a historical database for the Egyptian Stock Market indices that include the daily performance of each index. These databases will be of great importance for both researchers and policy makers.
c) Take actions that limit manipulating security price, like stop trading on the stock in case of increasing transactions number or number of traded shares for one investor up to specific limit.
d) Publish the results of such studies on the Egyptian Stock Market website.
e) Conduct behavioral finance awareness courses to individual traders and financial advisors to make them aware of the physiological biases that affect their trading decisions and accordingly the overall market behavior.
f) Include the Behavioral finance in the curriculum in all finance and investment course, especially those related to investment decision and financial management.

Future Research

a) The behavioral finance field as defined by Pompian (2007) is divided into Behavioral Finance Micro (BFMI) and Behavioral Finance Macro (BFMA). This dissertation has examined the overconfidence bias on the macro level which is related to detecting and describing anomalies in the efficient market hypotheses. But other studies argue that the level of overconfidence varies with the individual portfolio returns. Therefore, future research is required to test the implications of investors' overconfidence bias on the individual investors' level or from the Behavioral finance micro perspective.

b) Statman, Theorly and Vorkink argue that investors' overconfidence is a driver of the disposition effect which is the tendency to sell winners too soon and keep losers longer. They argue that overconfidence encourages investors to trade asymmetrically between gains and losses. Overconfidence differs from the disposition effect in two ways. First, the disposition effect refers to an investor's attitude towards a specific stock in the portfolio (Odean (1998), Ranguelova (2001) and Dhar and Zhu (2002). However, overconfidence affects the Stock Market in general. Second the Disposition effect explains the motivation for only one side of a trade. In contrast, overconfidence can explain both sides of a given transaction.

Therefore, future research is required to test the disposition effect together with the overconfidence bias on the market level as it has been claimed that disposition effect might be another behavioral explanation for the observed trading patterns within markets.

References

Admati, A.R., and Pfleiderer, P., 1988. A theory of intraday patterns: volume and price variability. Review of Financial Studies 1, 3-40.

Ajinkya, B.B., and Jain, P.C., 1989. The behavior of daily stock market trading volume.Journal of Accounting and Economics 11, 331-359.

Akaike, H., 1974. A new look at the statistical identification model. IEEE Transactions onAutomatic Control, 19.716-723.and Biases. Cambridge University Press, Cambridge.

Abdeldayem, M. & Mahmoud, M.R (2013) an examination into the impact of trading motives on the dynamic relationship between stock returns and trading volume: evidence from Egypt, Global *Advanced Research Journal of Management and Business Studies* (ISSN: 2315- 5086) Vol. 2(4) pp. 206-221

Abdalla, S. Z. S. (2012). Stock Return Seasonality: Empirical Evidence from the Egyptian Stock Market. *International Review of Business Research Papers*, *8*(2), 163-180.

Asness, C. S., Porter, R. B., & Stevens, R. (2000). Predicting stock returns using industry-relative firm characteristics. In *available at SSRN: http://ssrn. Com/abstract* (Vol. 213872).

Anasary, O. &Atua, M. (2012) the Effect of Stocks Trading Volume on Return in the Egyptian Stock Market *International Research Journal of Finance and Economics* ISSN 1450-2887 Issue 100(2012)

Balvers, R. J., & Wu, Y. (2006). Momentum and mean reversion across national equity markets. *Journal of Empirical Finance*, *13*(1), 24-48.

Barberis, N., &Thaler, R. (2003).A survey of behavioral finance. *Handbook of the Economics of Finance*, *1*, 1053-1128.

Barberis, N., &Thaler, R. (2003).A survey of behavioral finance. *Handbook of the Economics of Finance*, *1*, 1053-1128.

Barberis, N., Shleifer, A., &Vishny, R. (1998).A model of investor sentiment.*Journal of financial economics*, *49*(3), 307-343.

Beenish ,T.Ullah,N. (2013), Investors Overconfidence and Stock Returns : Evidence for Pakistan *IOSR Journal of Business and Management ISSN:2278-487X. Volume 8 Issue I*

Bondt, W. F., &Thaler, R. (1985). Does the stock market overreact?. *The Journal of finance*, *40*(3), 793-805.

Chan, L. K., Jegadeesh, N., &Lakonishok, J. (1996).Momentum strategies.*The Journal of Finance*, *51*(5), 1681-1713.

Cheema, M. A., &Nartea, G. V. (2013). *Momentum Returns, Market States and the 2007 Financial Crisis*. Working Paper.

Chen, C. Y. (2002). *The Investment Performance of Momentum Strategies and Contrarian Strategies in Taiwan Stock Market* (Doctoral dissertation).

Chen, Q., Jiang, Y., & Li, Y. (2012). The state of the market and the contrarian strategy: evidence from China's stock market. *Journal of Chinese Economic and Business Studies*, *10*(1), 89-108.

Chen, Y. (2007). *An Empirical Analysis of Trading Strategies in the Taiwan Stock Market*.Doctoral Dissertation, Alliant International University.

Chen, Z., & Zhang, S. (2011). *Overconfidence and turnover - Evidence from the Hong Kong stock market*. Master Thesis.

Chuang, W. (2003).*Empirical tests of the overconfidence Hypothesis*. Doctoral Dissertation.

Chui, A. C., Titman, S., & Wei, K. J. (2000). *Momentum, legal systems and ownership structure: An analysis of Asian stock markets*. University of Texas at Austin working paper.

Conrad, J., &Kaul, G. (1998).An anatomy of trading strategies. *Review of Financial Studies*, *11*(3), 489-519.

Cooper, M. J., Gutierrez, R. C., & Hameed, A. (2004).Market states and momentum. *The Journal of Finance*, *59*(3), 1345-1365.

Coval, J. D., & Shumway, T. (2005). Do behavioral biases affect prices?. *The Journal of Finance*, *60*(1), 1-34.

Daniel, K., & Moskowitz, T. (2011). Momentum crashes. *Columbia Business School Research Paper*, (11-03).

Daniel, K., Hirshleifer, D., &Subrahmanyam, A. (1998). Investor psychology and security market under-and overreactions. *the Journal of Finance*, *53*(6), 1839-1885.

De Bondt, W., Muradoglu, G., Shefrin, H., &Staikouras, S. K. (2008). Behavioral finance: Quo Vadis?. *Journal of Applied Finance*, *18*(2), 7-21.

Doukas, J. A., & McKnight, P. J. (2005).European momentum strategies, information diffusion, and investor conservatism. *European Financial Management*, *11*(3), 313-338.

Eric Girard, Mohammed Omran, (2009) "On the relationship between trading volume and stock price volatility in CASE", International Journal of Managerial Finance, Vol. 5 Iss: 1, pp.110 - 134

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance*, *47*(2), 427-465.

Fong, W. M., Wong, W. K., & Lean, H. H. (2005). International momentum strategies: a stochastic dominance approach. *Journal of Financial Markets*,*8*(1), 89-109.

Frehen, R. (2010). Momentum strategy during a financial crisis. Analyses of the Dutch stock market.*Master thesis Financial Management*.

Fung, A. K. W. (2000). Overreaction in the Hong Kong stock market. *Global Finance Journal*, *10*(2), 223-230.

Grinblatt, M., Titman, S., &Wermers, R. (1995). Momentum investment strategies, portfolio performance, and herding: A study of mutual fund behavior.*The American economic review*, 1088-1105.

Grundy, B. D., & Martin, J. S. (2001).Understanding the nature of the risks and the source of the rewards to momentum investing. *Review of Financial Studies*,*14*(1), 29-78.

Habib, N.M.2011. Trade Volume and Returns in Emerging Stock Markets an Empirical Study : The Egyptian Market. International Journal of Humanities and Social Science Vol.1 No. 19 December 2011

Haigh, M. S., & List, J. A. (2005). Do professional traders exhibit myopic loss aversion? An experimental Analysis. *The Journal of Finance*, *60*(1), 523-534.

Hameed, A., &Kusnadi, Y. (2002). Momentum strategies: Evidence from Pacific Basin stock markets. *Journal of financial research*, *25*(3), 383-397.
Hirshleifer, D. (2001). Investor psychology and asset pricing. *The Journal of Finance*, *56*(4), 1533-1597.
Ismail, E. (2012). Do momentum and contrarian profits exist in the Egyptian stock market. *International Research Journal of Finance and Economics*, *87*, 48-72.
Jegadeesh, N., & Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *The Journal of Finance*, *48*(1), 65-91.
Kent, D., Hirshleifer, D., &Subrahmanyam, A. (1998). A Theory of Overconfidence, Self-Attribution, and Securities Markets Under and Over Reactions. *Journal of Finance*.
Lakonishok, J., Shleifer, A., Vishny, R. W., Hart, O., & Perry, G. L. (1992). The structure and performance of the money management industry. *Brookings Papers on Economic Activity. Microeconomics*, 339-391.
Malkiel, B. G., &Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work*. *The journal of Finance*, *25*(2), 383-417.
Mansouri, S., Tehrani, R., & Ansari, H. (2012). Momentum Returns in Tehran Stock Exchange: The Influences of Size and Liquidity. *International Business Research*, *5*(11).
Moskowitz, T. J., &Grinblatt, M. (1999). Do industries explain momentum?.*The Journal of Finance*, *54*(4), 1249-1290.
Naughton, T., Truong, C., &Veeraraghavan, M. (2008). Momentum strategies and stock returns: Chinese evidence. *Pacific-Basin Finance Journal*, *16*(4), 476-492.
Nofsinger, J. (2005). The Psychology of Investing (2nd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
Nofsinger, J., &Sias, R. (1999).Herding and feedback trading by institutional and individual investors. Journal of Finance, 54, 2263–2295.
Oden, T. (1998).”Are Investors reluctant to realize their losses?”, Journal of Finance 53:5, 1775-1798.
Odean, T. (1999). Do investors trade too much? American Economics Review, 89, 1279–1298.
Pombian, M. (2007)“ Behavioral Finance and Wealth Management- How to build Optimal Portfolios that account for Investor Biases”. Wiley @Sones
Shefrin, H. (2000). *Beyond Greed and Fear*.Harvard Business School Press.
Sheikh, M. F., &Riaz, K. (2012). Overconfidence Bias, Trading Volume and Returns Volatility: Evidence from Pakistan. *World Applied Science Journal*,*18*(12), 1737-1748.
Slater, J., Wall Street Journal. (April4, 2007).“ The New Frontier: Mideast”, “Heard on the Street” Column in Section C1 – Money & Investing
Shiller, R. (1984).Stock prices and social dynamics. Brookings Papers on Economic Activity, 2, 457–510.
Schiller, R. J., (1999) “Human Behavior and the efficiency of the financial system”.In Taylor, J. and Woodford, M., (Eds.) Handbook of Macroeconomics. Amsterdam: Elsevier.
Schiller R. J., (2002)” From Efficient Market Theory to Behavioral Finance” Cowles Foundation Discussion Paper No.1385 October, 2002
Shefin, H. “Beyond Greed and Fear : Understanding behavioral finance and the Psychology of Investing. Boston, Massachusetts: Harvard Business School Press, 2000.
Shefrin, H.,&Statman, M. (1985). The disposition to sell winners too early and ride losers too long: Theory and evidence. Journal of Finance, 40, 777–790.
Shiller, R. J. (2000).*Irrational exuberance.*Princeton University Press, Princeton.

Statman, M., Thorley, S., &Vorkink, K. (2003).Investor overconfidence and trading volume. *Review of Financial Studies*, *19*(4), 1531-1565.
Statman, M., Thorley, S., &Vorkink, K. (2006).Investor overconfidence and trading volume. *Review of Financial Studies*, *19*(4), 1531-1565.
Zhang, X. (2006). Information uncertainty and stock returns. *The Journal of Finance*, *61*(1), 105-137.