Overconfidence and perceived market efficiency

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Abstract

In behavioral finance overconfidence bias has widespread importance. It is generally argued that overconfidence bias makes the market less efficient, because it created mispricing in the form of access volatility and the overestimation of one belief about its precision in price predictions. This paper is in fact arguing in favor of overconfidence bias that it can increase the perceived efficiency of markets in future. Overconfident investors spend more time and resources to collect more and more information’s that can draw prices more closely to its intrinsic value. This paper studies the impact of overconfidence on perceived market efficiency from three dimensions. Results supports the existence of overconfidence bias in investors. More ever positive relationship is observed between overconfidence bias and perceived market efficiency.

Key words: Overconfidence bias, market efficiency, over precision, overestimation, over placement

1.1 Introduction

Financial theories are based on the assumption that human beings are rational, that is they operate in frictionless markets and make rational decisions. There are various alternatives available where an investor can invest his money. Stocks, mutual funds, bonds and debentures are some of the options available to invest. They are exciting as they provide higher return but it the same time they are risky as well. Investment decision in these securities requires expertise and knowledge of stock market. Beside the basic objective of normal return there are some investors who want to outperform the stock market.
However one of the front line concepts of finance is Efficient Market Hypothesis (EMH) suggests that no one can outperform the market at any given period of time, because the information is available to all investors. More specifically we can say that no investor can avail the advantage in predicting future returns because no one has access to such information which is not available to everyone else. Thus we can say that in efficient markets, price become not predictable but random, so no investment pattern can be discerned. That is we can say that a planned approach to investment, therefore, cannot be successful.

But in practical life we can observe bundle of examples where investors have outperformed the market. One of well known investor Warren Buffett, whose strategy was to focus on undervalued stocks. He set example for other investors and thus many of them outperformed market with their active strategy. In presence of such investment performance how can we argue in favor of random hypothesis?

The concept of efficient market and rational investor behavior gain a lot of importance in last few decades. However, in many cases we can found evidences for the inadequacy of rational behavior and efficient market. Investors did not act accordingly to the basic notion of rationality. Rather contemporary research shows that investment process is more human than analytical. Sentiments of loss, arrogance and regret often override rationality. Finance research has often overlooked the investor’s decision making process while taking financial investment decisions current study attempts to understand the issue in hand.

Behavior finance studies the irrational aspects of investor decision making. In contrast to standard finance it explores different behavioral and cognitive aspects of irrational investors. psychological biases are imagine to make markets less efficient by creating asset-pricing anomalies, few of the asset pricing anomalies are momentum, reversals, post-announcement drift, and closed-end fund discounts, discussed by (Barberis and Thaler, 2003; DeBondt and Thaler, 1995). This prior literature argue that human biases can make market less efficient by mispricing securities unless there are rational arbitrageurs who bring prices to their correct position (Odean, 1998; Kyle and Wang, 1997). Overconfidence bias is one of those biases where an irrational investor can engage himself. This bias is important because study shows that it exists in many aspects of human behavior (DeBondt & Thaler, 1995). We can find strong literature support for overconfidence when we go through studies that are conducted on psychology of judgment, for review of literature on psychology of judgment see (Odean, 1998; Daniel, Hirshleifer, and Subrahmanyam, 1998).

In addition to this we can found literature support for linkage between overconfidence bias and pattern of trading and prices i.e. excess trading volume. (Daniel, Hirshleifer, and Subrahmanyam,1998), and excess volatility (Odean, 1998). There are some studies that are conducted in favor of overconfidence and they argue that psychological biases might actually make market more efficient (Jeremy, 2007). More specifically, an overconfident investor expect to generate extra returns as compared to market benchmark, he think so because he spend lot of resources in acquiring information related to stock markets and different financial assets (Elton, Gruber, Das, and Hlavka, 1993; Malkiel, 1995; Gruber, 1996). Once they acquire relevant information then they introduce information to the market they can drive security prices closer to its intrinsic value (Grossman 1976; Jeremy, 2007).

Focus of this paper is to analyze the relationship between behavioral biases such that overconfidence bias and market efficiency. This paper investigates the impact of overconfidence bias on perceived market efficiency.
1.2 Research objectives

To find out the relationship between overestimation on perceived market efficiency.
To find out the relationship between over placement on perceived market efficiency.
To find out the relationship between over precision on perceived market efficiency.

1.3 Research question

What is the impact of overconfidence bias on perceived market efficiency.
What is the effect of overestimation on perceived market efficiency?
What is the effect of over placement on perceived market efficiency?
What is the effect of over precision on perceived market efficiency?

2.1 Literature review

Paradigm of Standard Finance is based on the most well-known theory of efficient market hypothesis that was initially proposed by (Samuelson, 1965). “EMH” is based on the assumption that investors are rational and compete for seeking abnormal profits, and the competition between different profit oriented investors drives the price to their fundamental values (Ritter, 2003). It further says that all investors incorporate available information’s in their decision making process thus prices can be regarded as best guess of true investment values (Shiller, 1998). We cannot hold on to the theory of rationality for long period of time because human beings are affected by their modes, beliefs and emotions and that’s how they cannot remain rational for a longer period of time and that is the main reason that negates standard finance theory.

Studies shows that people fail to modernize beliefs correctly and have preferences that are somewhat different from rational investors in many dimensions (Kahneman & Tversky, 1974, 1979). More ever human thinking power is limited within particular period of time, that’s why they cannot process information up to its maximum capacity in problem solving process (Simon, 1957). In addition to this people have sense of social responsibility as well for example many investors will not invest in tobacco company (Kahneman, 1973). That’s why most of the investors will not base their decisions only on numerical values with complex mathematical support. Hence we can say that traditional theories may give an incomplete and deceptive picture of behavioral finance. And we can conclude that the concept of efficient market is crumbling and giving rise to the concepts of behavioral finance (Kuhn, 1970).

In the same decade we can notice numerous studies which point out deficiencies in the basic pillars of standard finance i.e. Roll criticism on CAPM (one of the front line theory of standard finance) can be traced as the tilting point where new paradigm view of finance raise (Roll, 1977). He said that CAPM is almost unfavorable, and raise some interesting questions which are still widely discussed in academia. More interestingly number of anomalies came to the scene in 1980’s and 1990’s. Standard finance fails to address these anomalies properly. That’s why we can say that standard finance theory is incomplete. The debate became more interesting when well known finance researcher Eugena Fama, withdraw his support from CAPM. Financial theories are witnessing interesting changes we may call this a paradigmatic shift from objective to subjective approach. (Anderson, 1988; Brock, 1994; Arthur, 1995; Arthur, 1997; Tesfatsion & Judd, 2006).
Investors may be tending toward a variety of behavioral biases, which guide them to make cognitive mistakes. All human beings posses heuristic simplifications that’s why they make predictable and non optimal decisions whenever they are faced with uncertainty. We consider a well known behavioral bias that influence human decision making “overconfidence bias”. One outcome of heuristic simplification “self deception” occurs when people think that they are better than other while in reality they are not (Trivers, 1991). Another attribute of overconfidence bias is when investors point out past success to their skills and past failure to bad luck. Researchers have presented overconfidence as a clarification for constant high rates of entrepreneurial entry, despite the fact that frequency of entrepreneurial failure is too much high (Camerer & Lovallo, 1999). (Malmendier and Tate, 2005) used overconfidence to clarify the high rates of corporate merger and acquisition, while it is known that most of such decisions fails. (Howard. 1983) and (Johnson, 2004) implicated overconfidence in the causes of war. (Neale & Bazerman, 1985) blamed overconfidence as a cause for both labor strikes and litigation. In short we can say that, “No problem in judgment and decision making is more prevalent and more potentially terrible than overconfidence” (Plous, 1993).

Overconfident investors perceives their abilities to be superior then other that’s why they use to take bold decisions and trade actively while under estimating the risk associated with his active investment strategy (Kyle & Wang, 1997; Odean, 1998). Study shows that excessive trade is used as proxy for overconfidence. We can also found evidence for overconfident investor’s exposure to higher risk. That’s why exposure to higher risk is also used as proxy for overconfidence (Barber & Odean, 2000, 2001) and (Odean, 1999).

Mean while studies were conducted to empirically investigate the impact of overconfidence on market efficiency through continuous trading. De Bondt and thaler consider the proposition that in financial markets overconfident investor generate high trading volume thus disturbing market efficiency (De Bondt & Thaler, 1995; Statman, Thorley & Vorkink, 2006). These models also observe that overconfident investors do so because they overestimate their abilities and precision of information they have. As we can see that overconfident investors remain active in their investment management, it should not be confused with disposition effect that is “tendency to sell winners too early and ride looser too long”. Statman in his study argued that overconfidence bias is a driver of the disposition effect, because overconfidence trait motivate investors to trade irregularly between gains and losses Statman, (Thorley & Vorkink, 2006). But overconfidence is different from disposition effect in two ways. First of all the disposition effect is limited to only a particular stock within the portfolio while overconfidence effect the stock market in general. Second, the disposition effect is related to only one side of trade that is too trade only those stocks that are performing better, while overconfidence bias covers both directions of trade (chen, 2001) and (Dhar & Zhu, 2002).

Study shows that overconfidence bias can be defined in three ways; first of all we can measure it through the overestimation of one’s actual ability, over performance, level of control and chance of success. In order to define these attributes of overconfidence we will call it overestimation (Soll, 2007). The above mention trait of overconfidence focus on one’s own ability. Second measure of overconfidence occur when people think themselves to be better the others, such as when a majority of people rate themselves better than the median. For simplicity we will call this trait as over placement (Larrick, Burson, & Soll, 2007). The third way overconfidence has been
measured is excessive certainty regarding the accuracy of one’s beliefs, ignoring the risk factors associated with the decisions that he is taking or what we will call over precision Barber & (Odean, 2000, 2001) and (Odean, 1999).

We can find literature support in favor of overconfidence as well as against overconfident investors. Its critique argue that overconfident investors over look risk factors and over estimate their investment decisions, ignoring market realities that’s why their active strategies make the market less efficient and give rise to excessive trading. While other argue that overconfident investors can help increase market efficiency because they spend most of their energy and resources to collect information. More ever their overconfident nature makes them to trade more thus creating an arbitrage process which will help the securities to retain their original position. But the basic assumption is the level of overconfidence must not be too much high. These contrasting views make this topic more interesting for researchers; this paper is an attempt to define overconfidence bias and its relation with perceived market efficiency.

2.2 Theoretical framework

2.3 Hypothesis:
H1: There is positive and significant effect of overestimation on perceived market efficiency.
H2: There is positive and significant effect of over placement on perceived market efficiency.
H3: There is positive and significant effect of over placement on perceived market efficiency.
3.1 Methodology

3.2 Data Collection

Most of the studies use secondary data to measure the effect of overconfidence bias on market efficiency. This study uses primary data instead of secondary data. There are two main reasons for this. Overconfidence is a behavioral aspect of human beings so it is more realistic to measure it through survey rather than using proxy based on secondary data. Another reason for use of primary data is stock market of Pakistan is not that much developed. It is very difficult to find account level data of account holders.

3.3 Questionnaire development

Variables are operationalised to different dimensions. Overconfidence is measured through three dimensions i.e. overestimation, over placement and over precision. It has been defined as when decision makers overestimate themselves and they start thinking that they can accurately forecast the future or different alternatives associated with the future (Moore & Kim, 2003). Some scholars have defined it as better than average effect Camerer and Lovallo (1999). Kruger (1999) also measure overconfidence as people perception about themselves to be better than average in the specified domain for which common individuals feel themselves skilled. This phenomena is also discussed in the context of control that individual think they have, more ever investors present positive images of themselves relative to others (Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995; Eiser, Pahl, & Prins, 2001). This study measure overestimation with five items focusing on self control, confidence, responsibility and knowledge. This study uses over placement as second dimension of overconfidence. Moore and Healy (2008) studies three different dimensions of overconfidence as discussed earlier. Over placement means over placing himself or his abilities relative to others. It is difficult to observe over placement directly. Different studies use different techniques to infer the tendency of individuals in decision making process under uncertainty. The instrument developed use five items to rank the perception of investors. Over placement attribute makes investors to place their stock selection, controlling and outperforming skills better than others. Benoit and Dubra (2008) claim the significance of over placement. This study uses different items regarding selection, control and responsibility to check out the over placement aspect of different investors. Third dimension of overconfidence which is widely discussed in literature is over precision. It is a form of overconfidence, which is prevalent and particularly impervious at the same time Benoit and Dubra (2008). Some scholars referred it as over precision in confidence interval Soll & Klayman, (2004). It means that they give over weights to their forecasting skills and many time make mistakes. Overconfidence investors having over precision in their minds display excessive trading (Daniel, Hirshleifer, & Subrahmanyam, 1998; Odean, 1999). Similarly investors were asking to rank their forecasting intervals. It is obvious to note that overconfident investors have strong beliefs regarding their forecasting skills, that’s why most of the investors give too much narrow range i.e. overly précised Soll & Klayman, (2004).
4.1 Data analysis

4.2 Descriptive analysis

Frequencies of the demographics shows that most of the respondents “88%” are male while 12% are female. Monitoring frequency in the instrument shows the management style of investors, we observe high frequencies for active management style 0.21% of the respondents monitor their investments daily 0.47% of the respondents monitor their investments’ monthly and 21% of the respondents took a bit long period “quarter” to monitor their investments. It means that 89% of the investors use active style of management. That is they take higher risk and tries to outperform the market. Study shows that active management provide better returns then passive management. Active management also confirms the presence of overconfidence. Because under confident investor are risk averse and go for passive management style.

Investors were ask to rank there forecasting range for different events. Almost 90% of the respondents assign too narrow range for their forecast. Most of the respondents mention a confidence interval of only 10%. Such fewer intervals narrow down the exact out comes and confirms certainty overconfidence in different investors. Respondents were ask: give high and low estimates for the area of Pakistan, how easy do you think it was to predict that Kse will reach 15000 points? Give high and low estimates for the investment decision that you have made. How much return will it earn how much you are sure that your investment will outperform market in the coming year. Beside few respondents most of the investors think that they can forecast the exact situation thus the went for interval that has range of only 10%. It reflects the over precision in their decision making. Thus descriptive analysis of the data confirms the presence of overconfidence in investment decision makers.

4.3 Regression analysis

Table 4 shows that all the three independent variables OREST, OVRPL and OVRPR are positively related with perceived market efficiency and its significance is confirmed by t test and its probability value. Intercept value is - .574 while the beta values for the independent variables are positive and significant. ANOVA results confirm the fitness of the model.

5.1 Conclusion and Discussion

In behavioral finance, it is commonly understood that there are various anomalies due to psychological biases which make the market less efficient. Anomalies such as momentum, reversal, post announcement drift and close end fund discount are the major factors that make the market less efficient Barberis and Thaler (2003). There are some studies which are negating the negative relationship between biases and market efficiency. The negating school of thoughts is the motivating idea for this paper. Psychological biases in decision making, investment overconfidence in particular, might turn the game and can make the market more efficient. Overconfidence investors think that they can earn abnormal profits by outperforming the market. They spend much of their resources to acquire new information’s. most of the time they underestimate the information from other sources
that’s why they strive to collect more and more information on their own behalf. (Elton, Gruber, Das, and Hlavka, 1993; Malkiel, 1995; Gruber, 1996). The scholars of classical paradigm suggest that rational investors get benefit from information’s that are collected by overconfident investors. In the absence of noise they use the information’s and make the market more efficient. This paper is an attempt to contribute to the same stream line literature of overconfident investors.

In this paper we develop a model for investor overconfidence and perceived market efficiency. The results derived from this paper are sufficient enough to support the hypothesis of increasing perceived market efficiency. This paper concludes that the irrational behavior doesn’t always decrease market efficiency. The investors devote most of their time and money to collect more and more information. We investigate this specific behavior of overconfident investors in three different dimensions i.e. over precision, over placement and overestimating. As they have tendency to overestimate their skills, so they underestimate the available information and collect more and more. They strive for more information because they possess the tendency to place themselves above average. Once they complete the process, then they go for investment decisions, most of the time unusual. There unusual decision making is because of there over placement dimension. They over place themselves then other investors. Similarly they take higher risk because they are confident about the precision of the information they have. Combining the three dimensions of overconfident investors make them collect more information thus introducing new information to the market making it more efficient. Another reason for increasing perceived market efficiency is that overconfident investors are active investors. The item related to trading activities shows high frequency. It means they are engaged in active trading. Thus creating high liquidity in the market which leads to market efficiency. Both individual and institutional investors can benefit from the outcomes of the study. The presence of overconfidence bias can affect the rationality in decision making. But excessive information gathering helps to increase market efficiency. Overconfidence can also bring overreaction and under reaction in the market, it mean that overconfidence can also be negatively related with market efficiency, this matter yet to be discussed.
References


Tables and figures

Table 1: Descriptive statistics

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<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard deviation</th>
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<tr>
<td>Sex</td>
<td>1.43</td>
<td>0.497</td>
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<tr>
<td>Age</td>
<td>1.01</td>
<td>0.1</td>
</tr>
<tr>
<td>Marital Status</td>
<td>1.01</td>
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<tr>
<td>Occupation</td>
<td>1.48</td>
<td>0.986</td>
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<tr>
<td>Education</td>
<td>4.84</td>
<td>0.367</td>
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<tr>
<td>Style of management</td>
<td>2.29</td>
<td>1.033</td>
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Table 2: Frequencies

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<tr>
<th>Sex</th>
<th>Style of management</th>
<th>Stock selection</th>
<th>Control</th>
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<tbody>
<tr>
<td>Male</td>
<td>Absolutely no</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Female</td>
<td>No</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Daily</td>
<td>Don't know</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Monthly</td>
<td>Yes</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>Quarterly</td>
<td>Absolutely yes</td>
<td>50</td>
<td>46</td>
</tr>
<tr>
<td>Semi annually</td>
<td></td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Yearly</td>
<td></td>
<td>20</td>
<td></td>
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Stock selection (you think you will pick the correct stock for your investment)
Control (You have control in packing stocks that will earn abnormal returns)

Table 3: Reliability analysis

<table>
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<tr>
<th>Variable Name</th>
<th>Cronbach's Alpha</th>
<th>No of Items</th>
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<tr>
<td>Overestimation</td>
<td>.702</td>
<td>5</td>
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<tr>
<td>Over placement</td>
<td>.744</td>
<td>5</td>
</tr>
<tr>
<td>Over precision</td>
<td>.721</td>
<td>5</td>
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<tr>
<td>Technical analysis</td>
<td>.740</td>
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<tr>
<td>Fundamental analysis</td>
<td>.756</td>
<td>4</td>
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<td>Overall reliability</td>
<td>.836</td>
<td>23</td>
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Source: Author calculations on spss software
Table 4: Regression analysis

<table>
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<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
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<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>B</td>
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<tr>
<td>(Constant)</td>
<td>-0.574</td>
<td>0.468</td>
<td>-1.226</td>
<td>0.223</td>
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<td>OREST</td>
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<td>0.094</td>
<td>0.348</td>
<td>4.451</td>
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<tr>
<td>OVRPL</td>
<td>0.401</td>
<td>0.075</td>
<td>0.418</td>
<td>5.381</td>
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<td>OVRPR</td>
<td>0.366</td>
<td>0.074</td>
<td>0.361</td>
<td>4.968</td>
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<tr>
<td>R square</td>
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<tr>
<td>F stat</td>
<td>31.739</td>
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A Dependent Variable: MKTEFF

Figure 1: Demographics and Style of Management
Figure 2: Frequencies of Certainty Overconfidence

Figure 3: Descriptive of Demographic and Monitoring Frequencies