



# Arrogance can be a virtue: Overconfidence, information acquisition, and market efficiency<sup>☆</sup>

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Received 27 June 2005; received in revised form 28 February 2006; accepted 6 March 2006

Available online 31 January 2007

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## Abstract

In behavioral finance, overconfidence has been established as a prevalent psychological bias, which can make markets less efficient by creating mispricing in the form of excess volatility and return predictability. In this paper, we develop a model in which overconfidence causes investors to overinvest in information acquisition when this information could improve market efficiency by driving prices closer to true values. We study the impact of overconfidence on mispricing and information acquisition, comparing their net effect on prices. We derive several novel implications. First, overconfidence generally improves market pricing provided the level of overconfidence is not too high. Pricing can also improve even when overconfidence is arbitrarily high, depending on the amount of private information acquired relative to publicly available information.

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*JEL classification:* G14; G12; D82

*Keywords:* Overconfidence; Information acquisition; Price quality; Market efficiency; Behavioral finance

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<sup>☆</sup>The authors thank an anonymous referee for many invaluable comments as well as Paul Fischer, Ching-Fan Chung, seminar participants at Cornell University, University at Buffalo, Penn State University, Korea Advanced Institute of Science and Technology, Seoul National University, and the 13th Securities and Financial Markets Conference. All errors are our own.

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## 1. Introduction

In behavioral finance, psychological biases are conjectured to make markets less efficient by generating asset-pricing anomalies such as momentum, reversals, post-announcement drift, and closed-end fund discounts, just to name a few (See [Barberis and Thaler, 2003](#); [DeBondt and Thaler, 1995](#)). Behavioral finance has emerged primarily to explain these anomalies that appear inconsistent with rational, efficient markets. Among various known psychological biases, overconfidence has come to be viewed by behavioralists as an important factor in financial markets because it has been shown by experimental psychologists to exist in many aspects of human behavior. [DeBondt and Thaler \(1995\)](#) state that “perhaps the most robust finding in the psychology of judgment is that people are overconfident.” (For overviews of the relevant psychology literature on overconfidence, see [Odean, 1998](#); [Daniel, Hirshleifer, and Subrahmanyam, 1998](#)). In addition, overconfidence seems to explain patterns of trading and prices such as excess trading volume ([Odean, 1999](#)), long-term reversals ([Daniel, Hirshleifer, and Subrahmanyam, 1998](#)), and excess volatility ([Odean, 1998](#)).

The motivating idea of this paper is that psychological biases and overconfidence, in particular, might actually make markets more efficient. Specifically, overconfident investors believe that they can earn extraordinary returns and will consequently invest resources in acquiring information pertaining to financial assets. Anecdotally, it seems that professional investors spend a great deal of time and other resources acquiring information about individual companies, industries, and the macroeconomy to make their investment decisions. They invest these resources in spite of it being unclear that they can even achieve returns that recoup these costs (See [Elton, Gruber, Das, and Hlavka, 1993](#); [Malkiel, 1995](#); [Gruber, 1996](#)). In the classic paradigm of [Grossman \(1976\)](#), rational investors have no incentive to acquire information in the absence of noise because they can free-ride by observing prices, which perfectly aggregate all available information. Hence, overconfident investors could introduce information into the market that drives security prices closer to their true values.

In the prior literature on overconfident investment, overconfidence generates mispricing, thereby making prices less efficient as measured by “price quality” or the mean-squared error (MSE) between prices and discounted payoffs (e.g., [Odean, 1998](#)). Thus, prior models have shown that overconfidence makes markets less efficient unless there are rational arbitrageurs to bring prices to their correct values (See model B from [Odean, 1998](#); [Kyle and Wang, 1997](#)). With endogenous information, however, the incentive of overconfident investors to acquire information is a possible countervailing effect that makes prices more informative and efficient even in the absence of rational traders. This possibility was mentioned by [Rubinstein \(2001\)](#) in an argument for efficient markets.

While overconfidence can express itself in other ways, surely it causes many investors to spend too much on research. ...As a result, there is a sense in which asset prices become hyper-rational; that is, they reflect not only the information that was cost-effective to impound into prices but also information that was not worthwhile to gather and impound. Overspending on research is not in one’s self-interest, but it does create a positive externality for passive investors who now find that prices embed more information and markets are deeper than they should be.

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