The dynamics of overconfidence: Evidence from stock market forecasters

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ABSTRACT

As a group, market forecasters are overconfident in the sense that they are miscalibrated. While overconfidence is persistent, respondents do exhibit some degree of rational learning in that they widen confidence intervals after failure as much as they narrow them after success. Market experience exacerbates overconfidence, primarily through knowledge deterioration.

1. Introduction

There is abundant evidence that most people most of the time are overconfident in the sense that they overestimate the precision of their knowledge, a phenomenon known as miscalibration.[2] In one variant of a calibration test, when individuals are asked to construct *x*% confidence intervals for currently (or soon to be) known magnitudes, such as the height of Mount Everest (or the level of the *Dow* in a month), usually markedly below *x*% of their intervals bracket is the true answer. Suboptimal financial decision-making, ranging from excessive trading (Barber and Odean, 2000; Deaves et al.,

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[2] Universal agreement does not exist on what overconfidence is. While in the present paper, we use the term "overconfident" in the sense of miscalibrated, there are other perspectives or metrics. The better-than-average effect (Svenson, 1981) induces most of us to think that we are more skilled at tasks or knowledgeable about information than average. Those subject to illusion of control (Langer, 1975) believe that they can somehow exercise more control over external events than can realistically be possible. Related to the latter is excessive optimism (Armor and Taylor, 2002), which exists when people assign unreasonably high/low probabilities to good/bad events. Importantly, we observe that people's overconfidence "scores" using different metrics often have low correlations (Glaser et al., 2005). See (Lichtenstein et al., 1982) for a review of miscalibration. Gigerenzer (1991) argues that miscalibration is largely frame-induced.

2008) and underdiversification (Goetzmann and Kumar, 2008) on the part of investors; or excessive entry into markets (Camerer and Lovallo, 1999), allowing investment to be dictated by cashflows (Malmendier and Tate, 2005) and over-investment (Ben-David et al., 2007) on the part of entrepreneurs and managers, has been argued to flow from various forms of overconfidence.

It is not just neophytes who are overconfident: more surprisingly, so are experts in their fields.[3] This includes practitioners in business and finance.[4] The insight that overconfidence is less likely if feedback is frequent and unambiguous (Fischhoff et al., 1977) leads to the expectation that this behavioral flaw is less common for frequent forecasters of unambiguous events. One example is individuals who earn their living in part by making stock market forecasts. Given the profit motive that is front and center in financial markets, weak performance should make survival more difficult, encouraging a sense of self-awareness by survivors.[5] Since both investors and corporate decision-makers use forecasts for portfolio formation and planning purposes, a poor sense of the market's true volatility can inflict harm.

If people recall their successes and failures equally clearly, over time they should obtain an accurate view. In this sense, experience should engender wisdom. On the other hand, the prevalence and persistence of overconfidence suggest that the forces able to eliminate it are weak. Most problematically, self-attribution bias leads us to remember our successes with great clarity, if not embellishment (Miller and Ross, 1975).[6] Along these lines, in the dynamic model of Gervais and Odean (2001), past successes exacerbate overconfidence, while past failures tend to be downplayed.[7] The result is that those who have had the good fortune of being successful in their fields might for a time be more overconfident than new entrants. Eventually, however, experience should reveal to people their true knowledge level.

The purpose of this paper is to examine both the statics and dynamics of overconfidence of stock market forecasters. The survey instrument employed is the *ZEW Finanzmarkttest* which is a monthly survey of financial market practitioners in Germany. Respondents are asked for 90% confidence intervals for the level of the *DAX* 6 months ahead. While an analysis of forecasting accuracy is far from unusual, the purpose here is quite different. The availability of not just point estimates but also confidence intervals allows for a careful exploration of overconfidence in both its static and dynamic manifestations. Graham and Harvey (2003) make use of a somewhat similar dataset of *CFO* forecasts and confidence intervals for the U.S. stock market. Their focus is not on overconfidence, however, as they investigate what can be learned about *ex ante* equity premiums and the relationship between risk and return.

We begin by investigating whether, consistent with previous evidence, the respondent group as a whole is overconfident. Next we explore whether survey respondents adjust their confidence intervals in response to past successes and failures. The relationship between experience and miscalibration is then considered. To preview, market forecasters are overconfident. While overconfidence persists, some learning does seem to occur as confidence intervals widen with failure and narrow with success in equal measure. Greater market experience is associated with higher levels of overconfidence. Section 2 describes the *ZEW Finanzmarkttest*. The next section specifies the hypotheses to be tested. Section 4 details the key empirical findings, and the final section concludes.

2. The *ZEW Finanzmarkttest* survey

The *ZEW Finanzmarkttest* is a monthly survey of about 350 financial market practitioners in Germany. Most of these individuals work for a commercial bank, investment bank, insurance company or investment department of a large German company. Each month, beginning in 1991, participants have been asked to predict a series of key macroeconomic and financial market variables for the key industrialized economies as of 6 months in the future. For example, participants are asked to predict the inflation rate, long-term and short-term interest rates, economic activity, and stock market levels for these countries. Until recently, questions only asked for direction: that is, rise/fall/unchanged. This questionnaire forms the basis for the well-known *ZEW Indicator of Economic Sentiment*, an indicator which, together with the *ifo Business Climate* index, is one of the most important and most closely followed economic indicators in Germany.[8]

Of course in Germany one of the key magnitudes to forecast is the level of the *DAX*. This index is analogous to a German *Dow*. Specifically, the *DAX* is a value-weighted index composed of the 30 largest and most important German companies traded on the *German Stock Exchange* in Frankfurt.[9] Starting in February 2003, *ZEW* survey respondents were asked to provide, in additional to a directional forecast, a quantitative one for the *DAX*. Specifically, point estimates for the *DAX* 6 months in

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[3] Two examples are clinical psychologists (Oskamp, 1965) and engineers (Kidd, 1970).

[4] Two examples of practitioners being overconfident are managers (Russo and Schoemaker, 1992) and investment bankers (Staël von Holstein, 1972).

[5] A strict efficient markets view of the world would seem to argue that those fooling themselves in this way will be driven from the marketplace, but some have called this into question (Hirshleifer and Luo, 2001).

[6] Related to this is cognitive dissonance, which sometimes induces us to forget what is unpleasant or did not go our way (Festinger and Carlsmith, 1959), and confirmation bias, the tendency to search out evidence consistent with one's prior beliefs and to ignore conflicting data, may also contribute (Forsythe et al., 1992).

[7] Other theoretical models of overconfidence include Kyle and Wang (1997), Odean (1998) and Daniel et al. (1998, 2001).

[8] The *ifo Business Climate* index is based on a survey of about 7,000 companies in Germany on their business expectations. Every month the *ifo Institute* asks about 7,000 enterprises in manufacturing, construction, wholesaling and retailing to provide assessments of their current business situation and expectations for the next 6 months. These enterprises can characterize their situation as "good," "satisfactory" or "poor," and business expectations for the next 6 months as "more favorable," "unchanged" or "more unfavorable."

[9] More specifically, the *DAX* is a net-dividend-reinvested index, which means it includes after-tax dividends which are reinvested in the index.