Errors in Expectations and Economic Fluctuations

Bordalo, Gennaioli, La Porta and Shleifer

Proposal for the Macro Annual

September 6, 2022

In recent years, we have seen substantial advances in the use of survey expectations in both finance and macroeconomics. In the study of financial markets, in particular, it is becoming increasingly clear that volatility of expectations, and predictability of expectations errors, accounts for the volatility of asset prices and return predictability. Several models of overreaction of expectations to news have been proposed to explain the evidence, by ourselves among others, and they are making some progress in changing the views on financial volatility.

Yet many questions remain open, especially in the broad area of expectations and macroeconomic volatility. First, how much of volatility in macroeconomic outcomes, such as employment and investment, can be explained by volatility of expectations? The evidence from financial markets suggests very strongly that it is long term expectations about economic conditions that matter for fluctuations, yet much of the research in macro has focused on short term expectations. What is the role of the horizon in expectations? Second, can one actually that the volatility of expectations can account for *excessive* volatility of macroeconomic time series, such as investment? When two of us and Yueran Ma wrote a paper for the 2016 Macro Annual, we did not have the data or the methods to answer this question, but the situation is now different. Research that started with Coibion and Gorodnichenko enables us to relate predictable errors in expectations to financial and economic outcomes. Third, what is the relationship between expectations of economic activity and those of credit conditions? As we show below, there is a close empirical tie between the two, and some thinking is required to understand it. More broadly, what is the relationship between business and credit cycles?

We would like to propose to deal with these questions, mostly empirically but perhaps theoretically as well. The starting and organizing empirical point of our analysis is a measure of expectations of medium term corporate earnings growth of financial analysts in the IBES database, which we have called LTG. This measure was introduced into finance by LaPorta in his phd thesis published in the Journal of Finance in 1996, but has been largely ignored until the last few years. Recently, it has been brought back to life, by ourselves and others, in the study of financial volatility and predictability of returns. It turns out to be an empirically remarkable variable.

As Figure 1 illustrates, fluctuations in LTG do a remarkable job accounting for fluctuations in stock prices and the Shiller puzzle. In fact, the data suggests that LTG is excessively volatile, in the precise sense that errors in LTG are predictable, and that *predictable* errors in LTG are highly correlated with future stock returns. In our first aggregate paper using LTG, Belief Overreaction and Stock Market Puzzles, we focus on this issue of return predictability. We show that, when investors are predictable excessively optimistic, stock returns over a 3-5 year horizon are unusually low. We further show that LTG is a slow moving variable, and it is the long run swings in valuations that are shaped by expectations, as in Figure 1. Perhaps most interestingly, the evidence shows, using tests inspired by the work of Coibion and Gorodnichenko, that it is the predictable errors in expectations that account for a predictable component of returns. The evidence points very strongly for the role of slowly moving sentiment, as captured by LTG, in accounting for volatility and predictability.

This evidence raises an obvious question that will be the first we would like to address in the macro annual. If LTG can account for the boom bust cycles in the stock market, can it also help explain such cycles in macroeconomic variables? Is there a parallel, that one can explore empirically, between medium term cycles in financial valuations, and those in real variables. This idea goes back at least to Kindleberger, and was illustrated for instance in the Greenwood Hanson paper on shipping, but a broader and more systematic investigation does not exist. So the first, and most basic question we would like to

address is to establish these empirical relationships, in both the cross section and the time series, between LTG and the various decisions of firms. We have done some preliminary work in this area, and the results are highly encouraging that LTG has substantial predictive power. This evidence will also speak to the point that much of economic research on expectations (including our own work in the macro annual some years ago) focuses on short term expectations, which might not be the best place to look.

But it is the second question that is perhaps more exciting and novel, and goes toward theory rather than just description. Using the Coibion Gorodnichenko ideas about predictability of forecast errors (from forecast revisions and other sources), we can ask whether responses of corporate decisions such as investment to changes in expectations likewise go too far. In other words, we can measure whether changes in LTG are excessive based on predictable forecast errors. We can also measure the path of corporate investment going forward. We can then ask whether predictable errors in corporate decisions explain reversals in investment growth over the medium term horizon. Put differently, we can ask whether excessive volatility of expectations can account for *excessive* volatility of investment or employment. Here again, we have done some preliminary work and the results are encouraging. If they hold up, they would go some way toward documenting what has been the crucial question of whether volatile sentiment or beliefs can be the source of excessive economic volatility.

The third question we would like to tackle goes back to a basic puzzle of macrofinance, namely that of the relationship between finance and fluctuations, but seen through the lens of expectations. It is the question of the relationship between credit and business cycles. Figure 2, which will be the starting point of this section, plots LTG over time together with expectations of BAA credit spreads, which have been used by several authors as an indicator of credit market conditions. Figure 2 shows a strong negative correlation. When forecasters are bullish about earnings growth, they also expect low credit spreads going forward. We also have found that it is not just LTG that is predictably excessively volatile and mean reverting. So are the expectations of the BAA spread. In both cases, errors in expectations are predictable,

and their predictable component accounts for economic outcomes. It appears that the beliefs about the earnings capacity of the corporate sector, as captured by LTG, are also reflected in beliefs about the risk in the corporate sector. Both aspects, of course, would shape investment. The credit supply channel may in an important part work through excessively volatile medium term expectations about earnings. We have not done very much work on this yet, but the ideas seem worth pursuing.

In sum, what we would like to propose is an exploratory investigation of the relationship between financial and economic volatility viewed through the lens of LTG. If the evidence works out the way it appears now, it will link credit and business cycles through the channel of slowly moving and excessively volatile expectations about the earnings capacity of the corporate sector.

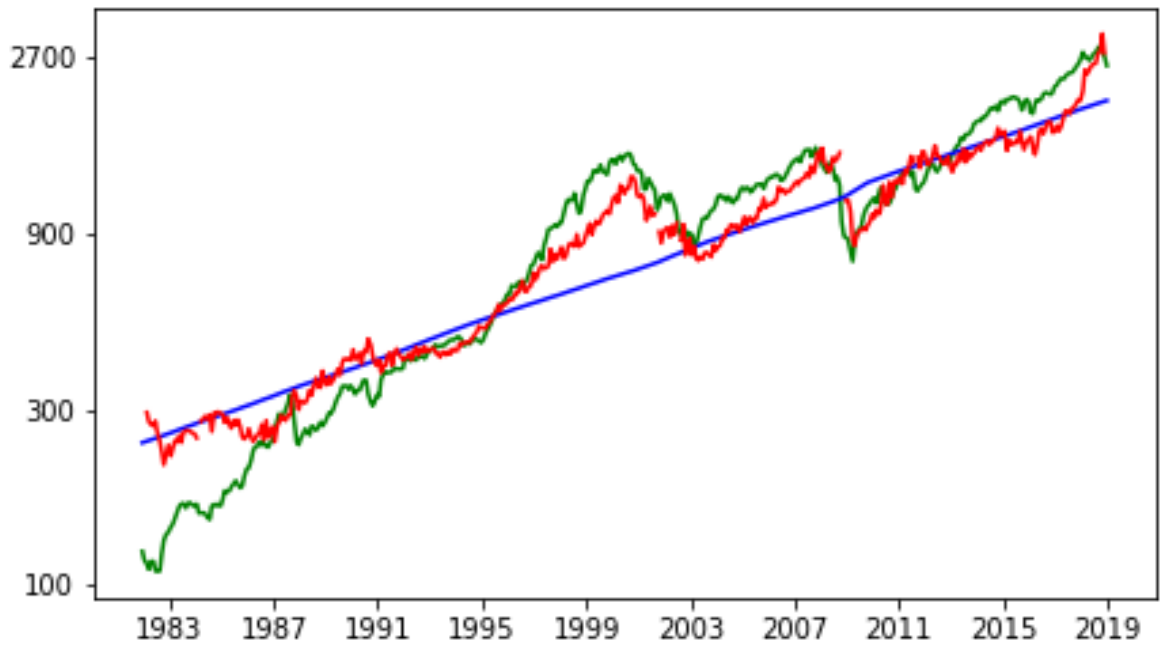


Figure 1. We plot in logscale the levels of the S&P500 index (green line), the rational benchmark index (blue line), and the price index based on earnings forecasts (red line).

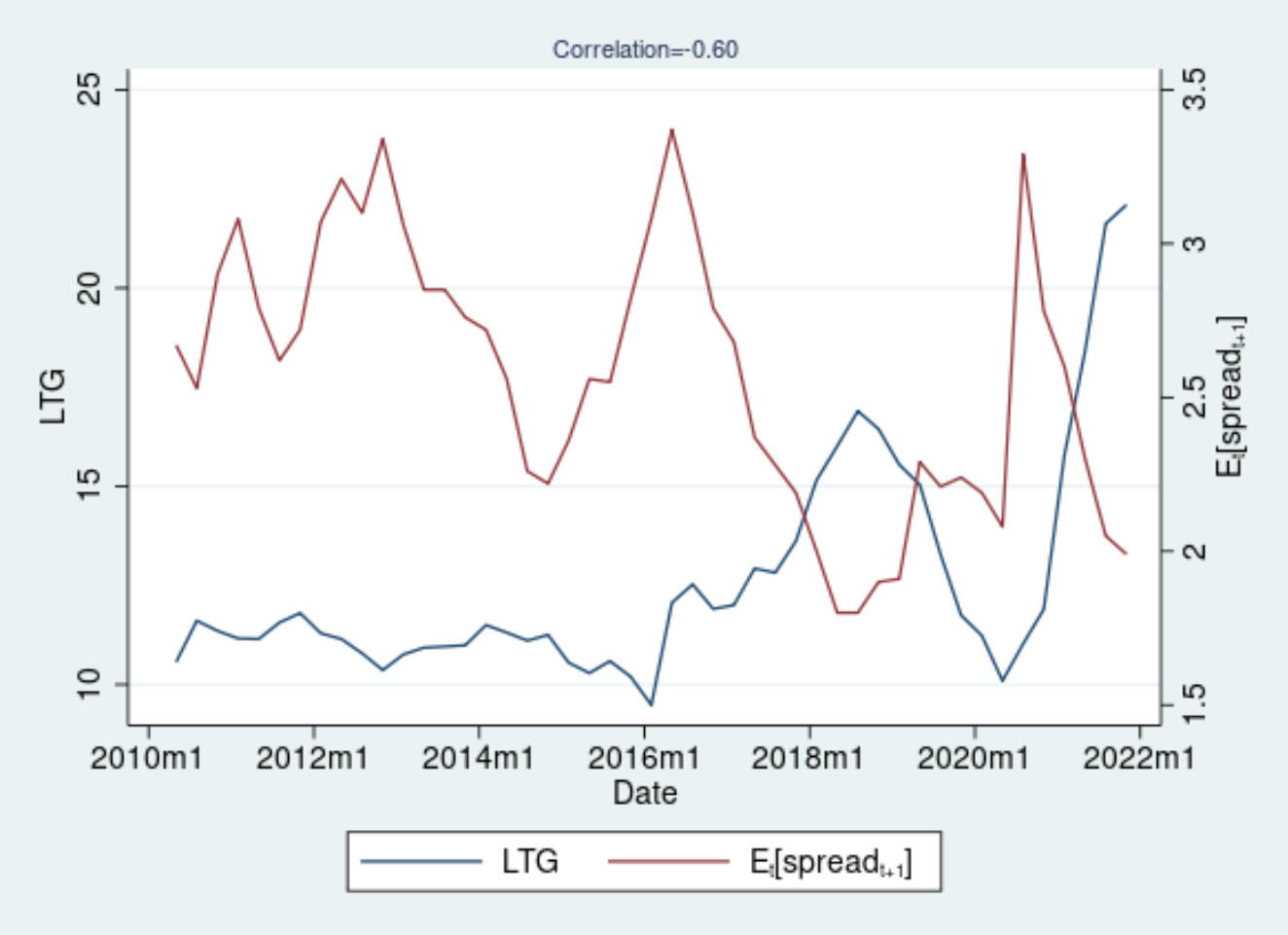


Figure 2. We plot LTG and forecasts for BAA spreads in the next twelve months from the Survey of Professional Forecasts.