I explore learning and statistical inference from the vantage point of economic decision-makers within an economic model. I use and develop ideas from decision theory that extend the Bayesian framework to accommodate a concern about robustness or model misspecification. I then investigate what implications this has for investors within an economic model as they attempt to forecast the future. Such attempts are an important component to making forward-looking decisions and have aggregate implications. I consider model economies in which investors find it difficult to determine which, among a family of models, best fits the data and show when concerns about model misspecification give rise to what looks like fragility in beliefs in the underlying economy. In particular, some bad realized aggregate outcomes lead investors to behave more cautiously and this is reflected in equilibrium prices of uncertainty.