In risk-research, there are two traditions of measurement: the attribute-based and the vignette-based tradition. The attribute-based approach focuses on the impact that the attributes (prob-abilities and outcomes) of risky options have on the processing of risk-related information. The vignette-based approach focuses on responses to questions about contextualized situations involving risk. We bring these two approaches together here to investigate the stability of risk preferences and information processing in risky choice tasks across different contextualized situations. To this end, we employ an evidence-based multi-attribute gamified risky choice task in a retest design. The results (N = 226) show that risk propensities are very stable within domains across time. Participants’ explicit beliefs about risks and returns did not accurately reflect the actual rank order of the costs and benefits of actions in the real world, which we obtained from statistical databases. Also, we find that that pro-spect theory’s risk-attitude parameters are mostly unrelated to the risk-taking in the contextualized task, and that benefit perceptions influence risk-taking, in line with a risk-return trade-off view on risk-taking.