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**Cognitive bias in the judgment of business valuations and valuers :
how systematic patterns of irrationality affect entrepreneurs, legal
professionals and business valuers**

Broekema, M.J.R.

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Author: Broekema, M.J.R.

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Summary

Valuation plays an important role in business and is used for investment decisions, mergers, acquisitions, restructurings, damages assessments, or when shareholder disputes occur. The scientific and practical field of business valuation constantly searches for answers to the challenges relating to the objects to be valued. Sophisticated arithmetic approaches like Discounted Cash Flow ('DCF') have been developed to counter practical issues, in order to objectify the valuation process as much as possible. However, conflicts arise daily due to differences of opinion regarding the outcome of a valuation and even the role of the valuator. This can lead to lengthy and costly litigation. The reasons for these conflicts are often sought in technical issues, for example relating to differences of opinion regarding input variables of the models and the valuation techniques applied. We, however, focus on the role of human behavior to gain an understanding of valuation disputes. More specifically, we investigated to what extent cognitive biases, i.e., systematic patterns of irrationality, play a role in the judgment process of valuation outcomes and valuers. Indeed, the influence of cognitive biases on human judgment forms a central theme within the research field of social psychology, and the topic is also well-addressed in other scientific fields. However, their possible effects on the field of business valuation have been largely ignored up till now.

Through experimental research among entrepreneurs, legal professionals and valuers themselves, we explored the role of cognitive biases among key-stakeholders of valuations. For this purpose, we conducted three empirical studies. The first experimental study, using a 2 x 2 between-subjects factorial design, investigated the presence of cognitive biases among entrepreneurs. By presenting respondents ($N=298$) with an impartial business valuation in the context of either buying or selling an entrepreneur's interest in a company, our study shows that entrepreneurs can be affected by thinking errors, more specifically, so-called buyer-seller position effects, and anchoring bias when judging a valuation outcome. The second experimental study examined the presence of cognitive biases among legal professionals ($N=272$) using both between subjects analyses of variance as well as mediation analyses based on correlational data. We show that, when judging valuations and valuers, legal professionals can be affected by similarity bias, outcome bias, and gender bias. The third experimental study, again using a 2 x 2 between-subjects factorial design, explores the role of biases among business valuers themselves ($N=363$) in judging a company's value when engaged by their clients. Specifically, the study

shows that valuers can be affected by anchoring bias and, interestingly, so-called engagement bias. The latter means that, despite being expected to make objective, independent judgments and calculations based on science-based valuation frameworks and professional standards, valuers have the tendency to, unconsciously, consider their client's economic interests.

Overall, we provide empirical evidence for the existence of cognitive biases in the context of business valuation, and make an applied contribution to the fields of business valuation and social psychology. The findings are also important for legal scholarship as by better understanding the effects of thinking errors among stakeholders in the judgment of valuations and valuers, a path to reducing unnecessary disputes may be found. Business valuers can be judged negatively or positively, purely based on preconceptions following on from cognitive biases. An adverse effect may also be that sound valuations are unconsciously judged as poor, and poor valuations as sound. In addition, valuers seem to be susceptible in practice to their client's interests without realizing this, despite societal expectations regarding their objectivity and independence. This endangers the profession.

A follow-up study was conducted in which an international group of high-profile valuers ($N=30$) were asked to explore whether they recognized the biases found in daily practice. Furthermore, respondents were asked to review a set of universal principles, developed using the outcomes of the first three studies, that aims to mitigate the influence of cognitive biases in the course of valuers' work. The results of this fourth study show that the vast majority of participants acknowledge the findings of the three experimental studies. Notwithstanding some critical remarks, they also reacted generally positive towards the proposed set of principles.

Our research has imperative practical implications for the understanding of disputes following on from or involving a business valuation. Specifically, the findings can and should be used to reduce the amount of lengthy and costly valuation-related legal procedures. By drawing attention to the influence of cognitive biases in the context of business valuation, our findings can assist, among others, entrepreneurs, legal professionals, and valuers in understanding and improving their judgments of valuations and valuers in cases when their interests are at stake. Moreover, based on our results, we advocate that worldwide, business valuers and their professional bodies should develop specific principles for valuation practice to mitigate the effects of cognitive biases, with the explicit aim of improving their own valuation work. The 'Statement of Principles for Valuation Practice to Mitigate Cognitive Biases', as presented in this dissertation, can be seen as a first step.