

Biases in Valuation

(A study of types, causes and approaches to reduce bias in Valuation)

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Abstract

Business valuations of the same assets made by different valuers frequently diverge, resulting in lengthy and costly disputes. This paper provides insights into various types of Biases in Valuation and the sources of such biases. The understanding of the Backdrop of biases in valuation would enable to craft better and more realistic valuation outcomes

Bias is, by far, the biggest enemy of good valuations and that it is pervasive

The Perspective

Business valuations are a key component of many business transactions. Consider for example a company that wants to acquire another company or sell a subsidiary. In both instances the value of the target company needs to be determined. Or consider a dispute between shareholders who decide to separate as a result. It is then necessary to determine the value of the shares to allow for these to be transferred. Likewise, when a company experiences financial distress and is facing bankruptcy, a valuator may need to determine whether the company's going-concern value – after a restructuring and/or turnaround – is higher than its liquidation value, as such that a comparison is used to assess whether it makes economic sense to rescue the company (e.g., through debt restructuring). As many businesses are currently on the edge of bankruptcy or have already entered insolvency proceedings, this last example will become increasingly prevalent in the aftermath of the COVID-19 pandemic. It will be of utmost importance that liquidation value and going-concern value after restructuring and/or turnaround are accurately assessed, to ensure for all stakeholders that the unnecessary further loss of economic value is minimized.

A valuation is often viewed as a number crunching exercise with readily available inputs and assumptions available, but it typically involves many subjective assessments, choices and assumptions that are prone to bias in a valuation. That is often driven by the underlying purpose for the valuation and if not managed properly, can give a result that may be limited in its usefulness. Valuers possess a certain level of professional autonomy to exercise their judgement on value estimation. However the dynamics in business environment, such as lack of a central market place and product heterogeneity makes such judgement susceptible to bias. In “hot” deal markets, executives often overvalue companies they are considering acquiring — and conversely undervalue potential acquisition targets when the economy is weak.

What Is Bias?

Bias is an illogical or irrational preference or prejudice held by an individual, which may also be subconscious. It's a uniquely human foible, and since investors are human, they can be affected by it as well. Psychologists have identified more than a dozen kinds of biases, and any or all of them can cloud the judgment of an investor., bias is also a tendency to ignore evidence that doesn't line up with that assumption. All valuations are contaminated by bias, because we, as human beings, bring in our preconceptions and priors into the valuations. When you are paid to do valuations, that bias multiplies and in some cases, drowns out the purpose of valuation.

Despite the commonly heard catchphrase "valuation is a craft, not a science" (e.g., Damodaran [2016](#)), the clear focus in the valuation literature on valuation techniques and associated inputs suggests valuation is typically treated more as a science than an art. We would encourage an increased focus on the psychological factors that can influence perceptions regarding a valuation object and ultimately valuations. Although we acknowledge that cognitive biases are hard to minimize or regulate, we advocate for an increased awareness of the influence of biases in business valuations. Discussions regarding the cause of large differences in valuation outcomes can benefit from insights from behavioral sciences, including the current research.

"Valuations are all about judgment," At the same time, differences in judgment can be magnified in the final value. A difference of 1 percentage point in the capitalization rate used for the income approach, for example, can be significant when extrapolated as part of a multimillion-dollar valuation. That's why it is important to understand what goes into making a judgment.

There are times, however, when, if a business valuator's report is biased, the bias is more difficult to spot. An attempt to intentionally drive the value in the desired direction may be disguised in several areas of the analysis. These may include, for example, the development of the discount rate in the Income Approach, or the comparable transactions selected in the Market Approach. The choice of "normalizing adjustments" for excess salaries, self-dealing transactions, owners' perks paid by the business, etc., and the amounts of these adjustments, also impact value. Such manipulations in these areas could have a significant impact on value individually. Alternatively, a series of small such manipulations could, cumulatively, result in a large change in value. These are harder to discover

Types of Biases in Valuation

Biases in valuation may be classified as under :

- **Conservatism bias** : Valuers measure the fair value of financial assets conservatively when there is more uncertainty in the inputs used to obtain the fair value. Applying this conservative approach is even more likely under pressure from investors or governance bodies, perhaps to gain their confidence and trust. While fair values are meant to provide an accurate picture of a firm's financial assets, but when markets are not always liquid and market prices are not always available to reliably measure the fair values, discretion must then be used. Understanding the discretionary biases at play can help valuers in delivering a better valuation output.

- **Anchoring bias:** While a valuer is educated and trained to conduct valuation analyses carefully, data deficiencies create input uncertainty which may lead valuers to apply heuristic behavior in their decision-making process. Available factual (but relevant?) information, such as previous value estimates or pending sale prices may act as reference points that may influence valuers in their current value estimates. This phenomenon is referred to as anchoring bias
- **Heuristic bias :** Depending on the level of objective and factual information available to the valuer, individual valuers must rely to some extent on their own judgement skills and hence may (sub)consciously be exposed to heuristic bias in their value decision.

Common Sources of Bias in Valuation

- **Forecasting.** A forecast or projection of future cash flows from a business is a key input to a valuation model based on future cash flows. In preparing as a forecast, there are many sources of potential bias. For example, there can be too much reliance on personal experience, intuition instead of independent information and data in estimating revenue growth rates and profitability metrics. Even if objective information is utilized, confirmation bias can result in more weight in the analysis being given to information that confirms existing optimistic beliefs that may be optimistic or pessimistic. When estimating the profitability of a business, the historical performance is often given significant weight, but those historical results are often subject to adjustments intended to normalize the results which can be selectively included or excluded.
- **Valuation Inputs.** Beyond the forecast assumptions, there are various other inputs assumed in a valuation model related to working capital and capital expenditure requirements, identification of redundant assets, discount rates and terminal value adjustments. For example, discount rates should reflect the risk of achieving the future cash flows forecasted but there are several choices among alternatives in building the discount rates that are subject to bias. Any one of these inputs, if misapplied or selected without any objective basis, can result in significant variations in valuation conclusions.
- **Valuation Multiples.** Market participants may rely on a relative valuation or market approach as the primary valuation approach or as a secondary approach. Obtaining relevant data from truly comparable companies that are publicly traded can be difficult and there may be a temptation to use companies that are not comparable due to size, product mix, end markets, etc. In selecting valuation multiples from open market transactions, transactions may be selected that are too old or not relevant for many of the same reasons related to publicly traded companies. Also, certain valuation multiples from comparable companies can included or omitted to achieve the objectives of the valuation and minimize those that conflict with the objectives.
- **Application of Discounts or Premiums.** The use of discounts such as illiquidity and minority discounts or a premium for control are more typical in private company valuations for shareholder disputes, income taxes and other disputes. Since there is limited objective information on discounts and premiums, a valuation conclusion can be subjectively decreased or increased by using subjective adjustments for various situations

How to reduce Bias in Valuation

- **Corroborate Forecast Inputs.** When estimating growth rates in revenues, factors like industry growth rates and market share should be considered. Independent information that conflicts should not be dismissed but rather used to stress test the forecasts. For

example, a business may be expected to grow faster than industry average during the short to medium term but over the long-term, businesses tend to revert to the average in the longer term. To address bias in normalized financial results or where there is a limited history of operations, to the extent possible, the historical profit margins as a percentage of revenues should be corroborated with independent industry evidence for reasonability.

- **Corroborate Valuation Inputs.** To the extent possible, other valuation inputs that have a material impact on the valuation should be based on objective verifiable information. This includes historical information related to inputs such as working capital and capital expenditure requirements and market-based information related to calculation and selection of discount rates. While historical data specific to the company is usually strong evidence for inputs such as working capital and capital expenditures, industry data should also be utilized where there is limited historical evidence or data available in an early stage business.
- **Bias in Financials :** The projections that are given to the valuer by the client need to be looked at with a critical eye,” he says. Because the valuation professional isn’t involved in the day-to-day operations of the business, it can be hard to determine if the projections are realistic
- **Cross Check the Results.** Where possible, a secondary valuation approach should be used to ensure the valuation conclusions from the primary valuation (typically a cash flow based method) approach are reasonable and consistent lending further support to the inputs and assumptions used in the primary valuation approach. This typically involves comparing the valuation multiples of a businesses with those of other comparable companies or to prior transactions in the shares of the subject company and if properly carried out, such an analysis can help stress-test the primary valuation method.
- **Valuation Range.** Any value that is obtained for a business is first and foremost an estimate and as accordingly should be quantified as a range of estimates to accommodate the inherent margin for error. This can be based on application of multiple scenarios and or presentation of a best-case (high) and worst-case (low) estimates of value. The output that is presented should reflect the estimates of value and the inherent uncertainty of those values.

Can AI and AVM reduce bias in Valuation

The benefit of these models is their ability to help minimize the potential for bias by focusing more on the “science” and less on the “art.” As the industry relies more and more on model-based solutions like AVMs, the promise of accurate and impartial valuations is on the horizon. Predictive models themselves, unlike humans, lack emotion and therefore inherently lack the associated biases. Yet, it is important to understand that models are only as good as the data they are fed (or not fed). Most data for property valuations is collected in person by the same person determining the final value, making those values susceptible to human bias. And so, even when applying technology-based alternatives to in-person appraisals, biased data can impact values if not recognized.

- **Data augmentation :** Sometimes the data available for modeling is insufficient in breadth or depth. These “thin” data sets may deliver inaccurate results. By supplementing this data with additional ancillary information or breaking data into constituent parts, models can sometimes increase accuracy.

- **Machine and deep learning** : These sophisticated algorithms not only analyze data and look for patterns, but also correct and refine their conclusions based on new and changing data. In this way, machines can learn to separate inaccuracies or “noise” from the data and focus instead on the most relevant information that consistently delivers the most accurate valuations without bias. Neural networks are a terrific example of how modern analytics can mimic human behavior, all the while potentially weeding out biases.
- **Artificial intelligence** : Perhaps the most exciting approach to reducing bias is through the growth of artificial intelligence. One promising discipline known as Computer Vision analyzes images to assess a home with virtually no human input. By not telling the model the demographics of the homeowner or of the neighborhood, we can see the home, just like the visiting appraiser, but exclude unhelpful, prejudicial data. In this way, we can begin to eliminate unintentional human bias and replace it with objectivity.

Conclusions

Not much empirical research has been conducted investigating the influence of biases on business valuations. This lacuna is surprising considering (1) the vast amount of research conducted on biases in other areas of financial decision making, and (2) the central role that the concept of economic value plays in corporate disputes, mergers and acquisitions, other investment decisions, and in insolvency proceedings

Bias in valuations cannot be eliminated as there will always be inherent estimation uncertainty from the forward-looking nature and many assumptions used. However, building better valuation models that effectively use available objective and independent information is an effective way of addressing the bias and the uncertainty arising from macroeconomic, industry and company specific conditions.

A biased valuation analysis is worse than useless

References

- Tversky and D. Kahneman, “The Framing of Decisions and the Psychology of Choice,” *Science* 211, no. 4481 (January 1981): 453-458.
- N. Barberis and R. Thaler, “A Survey of Behavioral Finance,” in “Handbook of the Economics of Finance,” ed. G.M. Constantinides,
- M. Baker, R. Ruback and J. Wurgler, “Behavioral Corporate Finance: A Survey,” in “The Handbook of Corporate Finance: B.E. Eckbo (New York: Elsevier, 2004), 351-417.
- D. Kahneman and D. Lovallo, “Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk Taking,” *Management Science* 39, no.1 (January 1993): 17-31

